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Original Contributions.

AUTOINTOXICATION AND MERCURIAL RETENTION.

By E. L. Clifford, D.D.S., Chicago.

A recent case in practice has proved interesting and recalls two other cases, the only ones of a similar nature occurring in an experience of twenty-five years. Mr. S. was referred to me on account of extreme discomfort of the mouth and teeth, being entirely unable to enjoy that most pleasant function of mastication and to attend to his dental toilet. Patient about 52 years of age, very nervous temperament, a slave to his business, which is mental, and its demands upon his vitality; an American, man of family, good moral habits, family history negative; no hereditary tendencies, general or local, could be elicited save those of rheumatism. Digestion unsatisfactory, a victim of chronic constipation for years. No particular catarrhal manifestations, but some effects of medicines suspected.

His business called him periodically to various towns and cities, and he was forced to consult different physicians almost constantly. Sometimes he would simply call upon the druggist wherever he happened to be, asking for something to move the bowels, and taking whatever was dispensed without knowing its nature. The kidneys were not active, and while there was no blood or skin disease in the general acceptance of that term, he complained of a cold and clammy sensation almost constantly. To drinking water he seemed to have a peculiar aversion, but what he used when at home he tried to have of the purest, keeping constantly in the house demijohns filled from some of the many springs, concerning which our mails are full of advertisements. His habits could hardly be classed as either active or sedentary, but seemed to occupy a middle ground between the two.

As to local pathology, his teeth gave evidence of about *ordinary* care, such as we constantly see in business men of that age and activity. Five teeth had been lost from early decay; no mechanical

abrasion, the morsal surfaces of all the teeth being almost as perfect as we should expect at 25 years of age. Exquisite sensitiveness, however, pervaded the entire dental apparatus, especially the labial surfaces and gingival margins of the incisors and bicuspids. The inferior bicuspids were badly notched, with typical erosion, and the labial surfaces of the superior incisors were almost denuded of enamel from the same disease. No cavities of decay; peridental membrane greatly inflamed and congested in several teeth, one of which, the left inferior second bicuspid, the inferior molars on that side missing, was in a more advanced stage of pyorrhea. The upper molars of the left side, having lost their antagonists, were elongated and somewhat loose. The two inferior central incisors showed the most loss of process and gum tissue. No deposits upon the teeth, either salivary or serumal, but considerable mucus, for which he apologized, laying same to his inability to use even the softest brush and tepid water. No malarticulation nor malocclusion. Oral secretions showed acid reaction.

Diagnosis—Autointoxication from intestinal tract, all emunctories clogged, all secretions chemically changed and nutrition perverted. Treatment—Locally, alkaline antiseptic and astringent mouth-wash several times during the day, followed by Phillips' Milk of Magnesia the last thing at night. Constitutionally, advised more open air, more physical exercise, more drinking-water, bath and massage with good friction on the skin, opened the bowels and kept them open until a large number of scybala were obtained, and stimulated the kidneys to full limit of comfort.

Now to the peculiar development in the case. After about four days of purging, with only watery evacuations, the symptoms of mercurial poisoning and autoinfection became very prominent. I had used no mercury, but the patient stated that formerly he used a great deal of blue mass, and that when away from home he did not know what the druggists or physicians gave him. The pills he received at their hands may or may not have contained mercury. At any rate, the condition became alarming to the patient and his family. Laxation, however, was continued, elimination forced as rapidly as possible, until when the scybala were obtained liquefaction of same had greatly progressed. Particular inquiry had been made to keep me posted as to the odor from the stools, intestinal antiseptics being in constant use.

After four or five days of purgatives and severe weakness therefrom, nature was given a chance. Rest and recuperation followed, and with a return of general function the local oral symptoms all subsided. The patient is now enjoying the greatest comfort with his mouth and teeth; life, he says, has reopened to him, and he promises to follow strictly the instructions of the future. Prior to this treatment the eroded facets on the bicuspids and incisors absolutely could not be touched—now he can comfortably take the proper care of them. There is no sign of pyorrhea remaining. As a precaution I have ordered the magnesia continued indefinitely. For the pleasant, speedy and safe results in this case, with a minimum amount of medicine given, I feel indebted to alkalometry.

The two other instances referred to in the beginning of this paper were two cases of extreme susceptibility and severe mercurial poisoning, resulting from wearing red rubber plates. One case was met with about fifteen years ago, the other two years since. In both patients, protracted treatments by their respective physicians gave no relief, but the changing of the dentures resulted in a quick and permanent cure.

Now a word as to mineral poisons. The pathologists tell us their effects are certainly cumulative; mercury especially may be stored up in the bones, laid by as it were for a rainy day, and when that day arrives, bringing with it the proper elements, chemistry produces a change, absorption follows, and that too of an indefinite amount, with its sequelae of danger and disaster. In this first case I believe a certain portion of blue mass or other mercurial had been engaged in the scybala and had remained therein protected probably for years. The scybala in their solid state would not permit absorption. In the *single* purgations with which the patient had been satisfied in the past they had not been dissolved nor removed, but remained a constant source of irritation and of danger; but in the *continued* purgation the scybala were partially dissolved and liquified and absorption was the result.

CELLULOID TABLE COVER.

By Grafton Munroe, D.D.S., Springfield, Ill.

I wish to present to the readers of the Digest a little wrinkle that may be of interest to many operators who like neat things and a neat appearance about the chair. The idea is a table-top which can be

applied to any swinging table. Secure the correct dimensions, inside measurement, of the top of your table, then obtain from some artists' supply store a piece of sheet celluloid, such as is used for art work, preferably white, and of sufficient thickness to lie flat when put down. It should be fastened in place with thumb tacks. It is easily kept clean with a dampened cloth, and is noiseless as compared with glass tops, as well as less expensive, yet it has the same advantage that glass has over cloth for this purpose. I have been using a celluloid cover for nearly a year, and can heartily recommend it to my confreres.

GOLD AS A FILLING MATERIAL.

By N. S. Hoff, D.D.S., Ann Arbor, Mich. Read Before the Michigan State Dental Association, at Kalamazoo, June 11-13, 1900.

We may properly give gold first place for esthetic reasons. The color is such as will harmonize with all complexions and most shades of teeth; is durable, and any tarnishing is superficial, so it can be readily renewed. It is capable of being made very smooth, so may be kept from the contaminating influences of the mouth. It does not change form under strain of mastication, nor dissolve in the oral fluids. Because of its beauty and indestructibility it is not without a wholesome effect on the mental and moral nature of the patient who wears it in his teeth; at least he keeps his mouth clean.

Each of us has undergone a long and patient course of training to reach even a moderate degree of skill in filling teeth with gold. Can we appreciate as we should the mental and moral value of this self-denial? So far as we do, I am sure there is no subject nor substance associated with our training that has had more to do with the cultivation of a high standard of morals and technical attainments than has come as the direct result of our effort to utilize this material.

As evidence of its reputation, I call your attention to extracts from well-known text-books as to its use in only one department of our profession. In regard to its use as a material for filling teeth, Dr. Taft says: "Of all metals used for filling teeth, gold possesses more requisites than any other." Dr. Louis Jack says: "Gold possesses the highest preservative qualities, and promises greater durability and more satisfactory results than any other material." Dr. Gorgas says: "To the use of gold, when properly prepared, there is the least possible objection; a tooth may be so filled with it as to

secure in almost every case its permanent preservation." Dr. Fillebrown says: "Gold is the most elegant material for filling teeth that we possess, and for most cases it is the best." Dr. Ottolengui says: "Gold is preeminently the best material with which to fill teeth, and our main reliance for the salvation of teeth which have decayed must be upon gold." On the contrary, we do not perhaps discredit the above statements, in quoting the only strong contradictory one —that familiar quotation from Prof. H. S. Chase: "In proportion as teeth need saving, gold is the worse material to use."

Will gold stand the strain of mastication? Undoubtedly no material that we now use can approach it in this respect. It is perhaps not so hard as amalgam, its nearest competitor, still it is tougher and more resistant, especially in those cases where the edges are thin or where small bands connect larger masses of filling material. Amalgam being hard and brittle is liable to break, while gold, even in small quantities, will withstand great stress without giving away, demonstrating its superiority in this particular at least.

Does it, when carefully and properly applied, thoroughly seal the cavity and protect the denuded dentin from recurring decay? This involves the question of adaptability, and probably in this respect gold is surpassed by almost all other materials used for filling teeth. Amalgam, gutta-percha, cement, and possibly tin-foil, are all more easily applied or adapted to the tooth cavity; and yet these materials suffer in another essential particular. They have not the same endurance, and therefore do not provide permanent adaptation and protection. Because of molecular dissolution, either from physical or chemical reactions, which are continually taking place in the mouth, the substances mentioned fail to protect the cavity from the reappearance of decay; and gold, although more difficult of adaptation, by providing a more permanent sealing of the cavity than any other material, more fully conforms to even this standard. Gold certainly withstands much better the onslaughts of acids which destroy the baser metals and alkalies which disintegrate the acid cements.

Is it compatible with sensitive tooth structure? In one respect gold suffers badly at this test. It responds readily to thermal changes, having a higher potential in this respect than any other filling material. As conductors of heat we may grade them in the following order: Gold, amalgam, tin, cement, gutta-percha. Be-

cause of this undesirable quality, gold sometimes is a very troublesome irritant. Gold itself, however, is kindly tolerated by sensitive dentin because it is not readily soluble nor oxidizable. As an insoluble substance it is practically inert, and of itself the least irritating material which can be placed upon sensitive dentin. It sometimes happens that by approximate contact with filling materials of amalgam or tin it induces electrical disturbances which may result in irritating magnetic currents in the region of the fillings, resulting possibly in the disintegration of the tooth itself. This is, however, an incidental phenomenon rather than an accompanyment of gold fillings. Most other materials, especially the cements and amalgams, because of their greater solubilities, are more likely to prove incidentally incompatible with dentin.

There are two kinds of gold used in filling teeth, cohesive and noncohesive. I sent recently to four of the largest manufacturers of gold foil in this country for an estimate of the relative amount of each kind of gold they sell. Some manufacturers make gold preparations which may be used when annealed as cohesive and when unannealed as noncohesive, so I made my classification under three heads, and below tabulate the replies received:

MANUFACTURER.	NONCOHESIVE.	COHESIVE.	EITHER.
A.	5 per cent.	65 per cent.	30 per cent.
B.	5 "	70 "	25 "
C.	10 "	80 "	10 "
D.	⅓ "	99⅔ "	0 "
Total averages	5¼ "	78½ "	16¼ "

From this table it will be seen that a very large per cent (78½) of the gold used in filling teeth is cohesive and a very small per cent (5¼) is noncohesive. The probabilities are that the percentage of cohesive gold is much increased because of the use of the "either per cent" (16¼), very much of which is doubtless used as cohesive foil.

This demonstration would seem to indicate that efforts to render gold more pliable and more easily manipulated are not being sought in the direction of noncohesive foil, as we would be inclined to infer from the fact that it has always been the claim for noncohesive foil that because of lack of cohesion it could be more easily and thoroughly packed into the angles and undercuts of comparatively inaccessible cavities. On the contrary, it would seem to suggest

either a renewed interest in endeavors to restore contours or a more general practice of this method of filling than is generally credited. We may not be justified in drawing these conclusions from this data because of its incompleteness, and also because of the fact that non-cohesive foil filling is scarcely taught at all in the dental schools, so the new men in the profession are prejudiced in favor of cohesive foil.

There are in use to-day three forms of the two kinds of gold, most of which are intended to be used cohesively, but some of them can not be used cohesively by any treatment. The first would include foils of every kind which come to the dentist in sheets of varying thickness but uniform in size, containing varying amounts of gold, indicated by a number. No. 2 foil, for instance, is a sheet about four inches square containing two grains of gold, while No. 60 is a sheet of the same size containing sixty grains of gold. The thinner foils, Nos. 2 and 6, are generally used by rolling them into ropes and cutting these ropes to varying lengths, from one to two inches, making pellets or rolls. The heavy foils are cut into narrow strips or ribbons. The thinner foils may be used on the cohesive principle by annealing, and when not annealed may be worked as non-cohesive foil. The thicker foils are always annealed at the time of their introduction into cavity.

There are objections to manipulation of the thinner foil by an operator who rolls it into ropes with a napkin or a piece of spunk. Unless done with great care the foil is not in the best form to produce a solid filling, for by careless manipulation it is crumpled so much as to produce great inequality in the amount of gold in each pellet or rope, so that in annealing and packing there is a lack of uniformity in the density of filling. If this manipulation has been done slovenly there is likely to be incorporated sufficient extraneous matter to interfere with the union of the several layers of foils, and the filling in time will tarnish and disintegrate because of imperfect welding. The preparation of foil into pads, which are then cut into strips or pellets, is cleaner and more preferable, as it places the sheets in smooth and regular form and impurities are less likely to be incorporated. This also facilitates packing and produces a more solid filling.

In consolidating pellets cut from a rolled rope, because of the irregularity of their structure it is difficult to drive out the enclosed air, which prevents complete consolidation, and also prevents that

close adaptation to the tooth walls which is essential to a good filling. The heavier foils are ideal in this respect, as their preparation is very simple. The foil is cut into ribbons of varying size, which are easily and perfectly annealed with little danger to the foil's integrity. This is so cohesive that its adaptation requires care only to place it with the plugger where wanted. It has the advantage of having only two surfaces to weld, where the same amount of gold in thinner foil or pellets would have from ten to twenty. It can be manipulated with smaller instruments and less force in malleting to secure the same and even closer union.

This form of gold not only produces a substantial filling throughout, but provides a surface which will take a high finish and remain so under the most severe use to which it may be subjected, showing little or no appreciable change in its form or surface. It will also retain its position with more shallow anchorages. In locations where necessary to carry it over exposed borders or through narrow fissures it is invaluable, because the full tensile strength of wrought gold in its strongest form is secured. Repairs to fillings with this form of foil can be securely made, because there is less liability to dislodge the original filling and secure anchorages may be put in its substance. In some respects a high order of skill is required for its manipulation, but reasonable care should be exercised to avoid the tendency to stuff the cavity rather than to fill it.

Cylinders are admirably adapted to filling proximal cavities in molars and bicuspids, also some classes of crown cavities; especially useful with the so-called "hand-pressure" method. But their greatest value is to be found in the combined hand-pressure and mallet. The use of cylinders by these methods will result in good fillings easily and quickly made. The chief fault lies in the failure to properly place and condense each cylinder. They may be used without annealing, and when so employed can be wedged latterly against the walls of the cavity or into angles and undercuts to some extent. But when annealed they should be condensed by direct pressure where placed, and should not be expected to change position to any considerable extent. Failure to recognize this distinction will result not only in imperfect condensation but lack of cohesion, and possibly of imperfections in adaptation. Cylinders should be annealed with great care, as there is a probability that by direct exposure to flame the pliable nature of the gold may be destroyed. They should

be kept from exposure to the air and carefully handled so as not to change their mechanical structure.

The third form of gold preparations for filling teeth includes the precipitated, or crystal, or "mat" golds. In 1853 Dr. A. J. Watts of Utica, N. Y., took out a patent for making the first crystal gold —it was, however, discovered and first made by Dr. H. R. White of Utica in 1851. It was then called sponge gold, and was made by dissolving pure gold in nitro-muriatic acid and precipitating it with oxalic acid in such a way as to induce the precipitate in the form of long crystals or fibres. The addition of mercury and heat was used to control the precipitation and determine its character.

The earlier preparations of crystal gold, although crude, met with much favor, but were partially abandoned when cohesive foil was introduced. We have at the present time several excellent preparations of crystal gold, all of which may be classified as cohesive, although without being annealed they are sufficiently noncohesive to be worked on that principle. They are, when properly annealed, capable of condensation into a solid mass, which may be rolled into plate. Contour fillings capable of taking and retaining a high polish are also made, and crown cavities which receive hard wear show little or no sign of destruction after long use. I have, however, noticed that thin edges where much exposed have a tendency to break out, indicating either brittleness or lack of complete welding.

I have made considerable use of this form of gold during the last three years with satisfactory results. For very small proximal fillings in the incisors, and also in other teeth the cavities of which may be in somewhat inaccessible positions, or such as would require extensive loss of tooth structure to prepare the tooth for ordinary filling material, it is almost invaluable. Instead of cutting these cavities through to the occlusal or labial surfaces, they may be opened labially or lingually and made sufficiently retentive in form to receive a considerable piece of the mat gold, which can then be consolidated with hand-pluggers of suitable angles to reach the grooves. The entire cavity is sometimes best filled with this gold, yet I find it often expedient to finish the filling with some other preparation of foil.

The greatest satisfaction came from using it to start fillings. Very little retaining shape is needed in many cases, as this gold seems to adhere to the tooth substance, and particularly if a sharp

corner or angle be made into which the first piece may be driven. It will settle itself with slight manipulation definitely and securely, so that subsequent additions of the same or other forms of gold may be successfully added without displacing it. By the use of this form of gold for such purposes deep undercuts and retaining points are avoided, and in many cases of frail or sensitive teeth this is quite desirable.

I find it of great service in starting fillings in the proximal surfaces of bicuspids and molors which involve the entire surface and extend beneath the gum margin, necessitating the use of matrix. It is almost always difficult to make a suitable seat for fillings in such cases; but with a suitably adjusted matrix and a slight undercut on the lateral walls it is easy to start such fillings and make a secure joint at the cervical margin; and because of the ready adaptation of the gold good lateral joints are also possible. My practice is to carry such filling up into the cavity so far as may be necessary with alternate layers of mat gold and No. 60 foil until I can obtain direct access and a clear view for manipulation of the heavy foil, completing the filling with No. 60. In these cases I secure a strong anchorage for my filling on the occlusal surface of tooth, and by building a considerable part, say one-third, with No. 60 foil I feel confident that no amount of strain from mastication, which the tooth itself can stand, will disturb the filling.

Discussion. *Dr. J. A. Watling:* Despite the statistics furnished, I believe noncohesive gold has considerable value as a filling material. The first piece of gold put into a cavity I never anneal, so it is practically noncohesive, but I anneal each succeeding piece, and the amount of heat depends on the gold. If it tends to break in working I anneal it more and more as the filling progresses. The old operators ignored the cohesiveness of gold, yet made excellent fillings, simply on the principle of corking up the cavity. It would be difficult to cork a beer bottle with a piece of hard wood and keep the gas from escaping; so with fillings the softer the material used the better it will adapt itself to the walls of the cavity.

It requires more care to make good fillings with sponge gold than with any other, as in it there are millions of infinitesimal particles to be welded together, while the foils are already welded and do not require so careful and slow manipulation. Although the center of a sponge gold filling may be hard there is apt to be no con-

solidation against the walls of the cavity. Mat gold probably needs less retaining form than foil, as it does not slip around in a cavity so much as the latter.

Dr. J. N. Crouse: All absolutely pure gold is cohesive, and gold to be noncohesive must be either coated with something or else be impure. Noncohesive foil can be made cohesive by subjecting it to red heat, and vice versa, by putting it into a jar with a little ammonia on cotton at the bottom of same.

The advantage of non-cohesive gold is, that you can condense it more readily and in larger masses without its choking up. I generally start a filling with one sheet of No. 3 gold made into a cylinder, but the same quantity of cohesive gold would choke the cavity and not fit into it. In case non-cohesive gold does not go to the right place at first it can be taken out and unrolled, as it does not weld in the cylinder. I use a great many of the home-made non-cohesive cylinders, and can generally complete the filling in one-fourth less time than with cohesive foil. I do not think, all things considered, so good a filling can be made with mat gold in the same time as with foil. The matrix is all right for amalgam but not for gold, as in making fillings of the latter you must employ considerable lateral pressure, and you can not get it if a matrix is in place.

GAINING ENTRANCE TO PULP-CHAMBERS AND ROOT-CANALS.

By L. P. Hall, D.D.S., Ann Arbor, Mich. Read Before the Michigan State Dental Association, at Kalamazoo, July 11–13. 1900.

We will suppose that the teeth are already devitalized, and that the rubber-dam has been placed where possible. If the tooth is very sore we may not need it the first time, as all we can probably do will be to give relief, and perhaps syringe tooth out. But when treatment is begun the dam is certainly needed. There are cases where it can not be used, for instance, those in which it is almost impossible to keep the saliva out, because the decay reaches so far beyond the cervical margin. In these it is possible to fill that portion at once with a temporary stopping of cement, amalgam, or gutta-percha, and make a new opening through the crown for treatment. In that way only one tooth need be covered.

As frequent reference will be made to the Gates-Glidden drills, it

may not be amiss to discuss the proper way to use them. We will all agree that they are not to be used except with care, never forced, and frequently withdrawn and cleaned; the pulp-canal, as well, must be cleaned, so that no debris is forced through the apex. Whether used in the straight handpiece or right angle, there should be a large, a medium, and a small drill. Which shall we use first? The advertisements usually say the smallest, following with the next in size, until you have made the canal large enough. With the reverse you will break fewer drills and use them to better advantage. Why? Because the canal or root as it leaves the pulp-chamber is largest just there and will stand more reaming. There is nothing to bind the largest drill at this point; then, after the first cut, there is a sufficiency of room in which to work the next size without binding. Do not think it necessary always to drill out a canal to the apex; sometimes to merely countersink or funnel out the mouth of canal is all that is required. If the canal needs much reaming out, find direction and length by using a very fine plain broach or explorer. The size of the crown may indicate the size and length of root, but the fallacy of this is seen frequently.

When a broach is passed through the apex of a root the sensation experienced is like a pin-prick, while if it touches a portion of pulp in the canal it will be more acute. Sometimes a broach so fills the canal that it acts like a piston, and air and debris are forced through, This causes pain. A more slender broach will pass much further with no pain.

To begin with the simplest and most easily entered teeth, we will first consider the superior incisors. Usually there is a filling or cavity on either the mesial or distal side, rarely one of sufficient depth on the labial. If a good filling be present, leave it intact and open on the lingual surface in the fossa. If a cavity presents, and of such shape and size as will with slight enlargement permit the passage of broaches and other instruments directly into the canal, its orifice will be sufficient.

Place the rubber-dam on three or four teeth in such manner that the cavity will be about the middle of the teeth covered; then cut away all thin walls and excavate from cavity all debris. Next, with either bur or drill ream out, if necessary, that portion of dentin between canal and cervical border of cavity sufficiently to allow free access to probe or broach. Now cleanse the canal of all debris of

whatever character, being careful not to force either instruments or debris through apex of root. If canal is of usual type, no further reaming will be necessary; if much reduced in diameter, either a broach or a Gates-Glidden drill may be used. Seldom is it well to force a drill to the extreme apex. Rather cut only enough to permit the free passage of broaches or probe with cotton for carrying medicinal agents or for drying purposes.

If, however, the operator expects to make use eventually of the canal for the post of a crown, it is advisable to so ream out canal that it will admit a fair-sized platinum pin before filling, as it is more readily done while you have in mind the general shape and direction of canals than to trust to memory and follow only a slender point of gutta-percha or whatever may have been used.

A tooth is occasionally presented in which there are either no cavities or the fillings are well made. In these cases it is of course best to open from the lingual side and in direct line with the long axis of the tooth. In case the tooth is very sore to touch, only the smallest and sharpest drill should be used; when it is once started, an even, steady pressure should be maintained. Once through to the pulp-chamber, or as soon as this venting will permit, the opening should be enlarged so that not only will free access be obtained to the canal, but also to the fan-shaped pulp-chamber, that all debris may be removed from the crown portion of the tooth.

Superior cuspids may be entered in much the same manner. Usually they are entered from distal cavities, and if so the cavity should be extended well to the median line on the lingual side to avoid bending or binding of instruments. It must be remembered that these teeth have much longer roots, and though usually straight, they may have much curve, even a right angle curve, near the apex. As they have large, strong roots, they will stand much reaming two-thirds of the way to the apex. Beyond that care must be exercised lest the drill be forced through the curve or to one side. A very fine spring-tempered probe may find the way through.

The first and second bicuspids are usually entered through proximal cavities. Either mesial or distal cavities, especially the distal, should be opened nearly to the center of the crown upon the long axis of the tooth, so a broach or drill will not be bent unnecessarily. The floor of the cavity should be opened sufficiently that no undercut remains between the cavity and the pulp-chamber.

In the first upper bicuspid there are almost invariably two canals if not two distinct roots. Here we have the pulp-chamber more or less distinct from the root-canals. These canals, situated at the extreme buccal and lingual sides of the pulp-chamber, are usually quite slender and may be difficult to locate. A safe method is to use a rather large round bur and cut a clean base to the pulp cavity, carrying well to lingual and buccal, removing all sharp edges and overhanging shoulders of cavity opening. A fine smooth broach will usually locate these canals and give a fair estimate of curve, length and direction. The canals being located, they may now be opened with large G. G. drills, following with the next size. In the second bicuspid the pulp-chamber and canal are less distinct, as the single canal is usually larger and extends from buccal to lingual of the chamber.

A bicuspid pulp sometimes dies after the tooth is well filled, or even when there is no cavity. In that case the tooth should be entered through the center of the crown with a small, sharp, plain drill, and this opening should be so enlarged that every portion of the pulp-chamber may be cleaned. This opening is often made too small to allow of good access.

The buccal roots of the upper molars and the mesial roots of the lower first molars probably present the most difficulty. A study of the anatomy of the teeth gives us some guide. In the first upper molars the roots are normally well apart, the anterior buccal root leaving the neck of the tooth as an extension of the mesio-buccal cusp or lobe, and curving to the mesial, while the disto-buccal root leaves the neck of the tooth as an extension of that lobe or cusp, but in a distal direction. The apices of these roots may turn toward each other more or less. The lingual root is larger and projects well into the palate. In second molars the buccal roots are closer together and leave neck of tooth on more parallel lines, though both may curve distally. The lingual root does not spread away so much to the lingual, and any two or possibly all three roots may unite.

In upper molars with fair-sized mesial cavity there is no great difficulty of access, the main hindrance being in reaching the anterior buccal canal. Too often the posterior canal is mistaken for the anterior. If there is trouble in reaching this canal through the mesial cavity, how much more is there if we work through a distal cavity? Now surely we must open well into the crown of the tooth,

even though we sacrifice a considerable portion of good tooth substance. All overhanging shoulders and undercuts must be cut out or beveled to orifice of main opening to enable operator to see every portion of floor of cavity, especially to openings of canals. If there is no proximal cavity, gain entrance with a sharp, plain drill from the mesial side and toward central portion of crown, and enlarge this. If there is either mesial or distal cavity, open from this to central portion of crown. In either case open.

In either upper or lower molars good access to pulp-chamber may be had through large buccal cavities by extending into crown. If buccal margin is low, build up temporarily to hold dam. Having opened well the orifice through which to treat, excavate and cleanse. Now locate all the canals with a fine broach; in normal teeth the lingual is easily found, and so, perhaps, is the disto-buccal. The pulp-chamber is usually located partly in the crown and partly in the neck of the tooth, so that the anterior buccal canal may be beyond neck of tooth, and in curve of root, hence far forward. If only one buccal canal is found, note its direction with regard to supposed direction of buccal roots, and then, with a large round bur in either a straight or right angle handpiece, cut out in the direction the canal should be. Blow out chips and examine frequently with broach. Never use a small drill or small bur for locating a canal; there is too much danger of going in the wrong direction, and if a deep cut is made next to canal it troubles constantly when you pass into the right one. The orifice of the canal opening from the pulp-chamber may be round or flattened, large or small. If small, and either round or flat, its orifice should be enlarged with largest G. G. drill, so that instrumentation or treatment may be easily made. The rest of the canal may, if necessity demand, be enlarged with the next size drill until it can be cleansed and treated with a fair degree of ease and certainty.

Lower first molars are perhaps more trying than the seconds, as their roots divide closer to the crowns, and the mesial root, as it leaves the neck of the tooth, usually slants first to the mesial from pulp-chamber, thus bringing the openings of the canals well under the shoulder of dentin between the front of the tooth and the chamber. Hence enough should be cut away to give the operator a chance to reach that canal from a distal direction. Too much emphasis can not be laid on the question of proper extension of cavity for access.

In lower second molars the canals are closer together and more nearly parallel.

The canal portion of the lower incisor is much flattened from labial to lingual, the longest diameter being at the gingival line. It grows thinner as it nears the cutting edge, but somewhat broader from mesial to distal. It contracts gradually toward the root and blends with the canal in a slit-like opening extending through the greater portion of root. In many instances, however, on account of the thinness of the root, the canal may be divided for a portion or possibly for all the way. This division may begin at the gingival line or below it, usually uniting into a single apical foramen. As age advances these canals often become exceedingly minute. Access may be gained through a mesial or distal cavity, which must be extended pretty well toward the cutting edge, or through the lingual side, in line of the long axis of canal. Here again must the shoulder, formed between the canal opening and the cervical border, be cut away so an instrument may pass with little or no bending. On account of the thinness of root from mesial to distal, great care must be exercised that a drill is not forced through the lateral wall. Cavities must be extended toward the cutting edge enough to permit thorough excavation of the chamber.

Lower cuspids, when treated, are entered in a similar manner, i. e., either through a proximal cavity or through the center of lingual side. The same care must be given to cutting away the shoulder or borders to allow of free access in line of long axis of canal. In the lower cuspid it is well to bear in mind that there may be two distinct canals with separate apical foramina. Should the entrance be from a proximal cavity that did not open much on the labial side or cutting edge, it should be extended far enough to lingual to give most direct access to canal.

Lower bicuspids are often difficult of access because of their position in the jaw, i. e., the position of crown on root; and because of the fact that their buccal cusps are carried so far over to lingual, thus bringing the thickest portion of enamel over the central or long axis of canal. In extending either a mesial or distal cavity toward the center of the crown, it can be done by cutting up from beneath that is, by undermining the dentin and then cleaving off the enamel When a lower bicuspid must be entered either through the crown or through a good filling, extreme caution will be necessary lest the

drill is forced through the lingual wall at neck of the tooth, as the crown is placed on the root at a marked angle, and the neck of the tooth is much constricted.

Access is not unfrequently obstructed by pulp-stones. In the single-rooted teeth these deposits are usually round and easily dislodged. In molar teeth they may be small and round, or they may be large and irregular, nearly filling chamber. In the latter cases, with a good general knowlege of the size and shape of pulp-chambers, there can be no harm in cutting away freely with large round bur until the edges of this growth can be outlined. Then it can be pried out or chipped away.

Sometimes a case is presented in which there is exposure of pulp through a small, deep cavity, say on the buccal side of a tooth, close to cervical margin—a cavity that can be excavated and filled, but through which it would be impracticable to remove pulp or treat tooth. In such cases excavate and apply treatment for devitalization of pulp, and fill permanently with expectation of opening through a more convenient point of access, when the pulp-chamber may be extended to original treatment, which may be now removed and chamber then extended to sound portion of filling without cutting away the coronal portion over original cavity.

As an aid in finding canals and gaining access, dilute sulphuric acid, followed by bicarbonate of soda, is often used. The acid not only disintegrates the decomposed pulp structure, but enlarges the canals by its solvent action on lime tissues. The acid is neutralized by the bicarbonate of soda, the effervescence so caused bringing out many small particles of debris not otherwise reached by broaches. Again, when neutralization and effervescence have ceased and the cavity has been dried by hot blast, the walls of cavity and canals are covered with a thin deposit of soda, and a canal will sometimes show a dark spot which has not been noticeable before. It is not advisable to use sulphuric acid in recently devitalized teeth; 3 per cent pyrozone, or peroxid of hydrogen, or peroxid of sodium, may be employed.

Discussion. *Dr. A. C. Runyan:* I do not feel that the Gates-Glidden drills are safe enough to use, so I locate the canal openings with sulphuric acid and open into same with a broach, applying more acid by dipping it into the latter and carrying to tooth.

Dr. C. P. Wood: I do not believe in reaming out a canal pre-

vious to filling of root where a pin crown is to be used, nor in enlarging at all, for the smooth sides of canal will allow the passage of pin better than any large opening I can make.

Dr. J. N. Crouse: I consider it bad practice to ream out canals, as the natural surface is thus disturbed. In forty-nine cases out of fifty I successfully remove pulp entire with cotton wound around a smooth broach and worked into canal. The use of sulphuric acid as advocated by the essayist is bad except in extraordinary cases, for it will usually go through the foramen and cause the patient much pain and trouble.

Dr. L. P. Hall: I use the drills only where the canal is twisted or small, and sometimes I remove the greater portion of the pulp with them, finishing with the broach. I break drills occasionally, but before using them I broke a much larger number of broaches than at present.

DRY STORAGE BATTERIES.—In the *Centralb. fur Accumulatoren und Elementenkunde* Herr Liebenow discusses the question of dry storage batteries, and states that in his opinion no attempts in this direction are likely to be successful. It has been shown in investigations into the action of secondary cells that there are electrical concentration currents set up which tend to convey the acid in the pores of the plates from points of maximum to points of minimum concentration. These currents are necessary to equalize the strength of the acid, and effect this far more readily than would be done by diffusion acting alone. When a gelatinous electrolyte or a dry, nonconducting powder is introduced between the plates, this equalization is prevented, and the cell is soon exhausted.

COMMON BUT GENERALLY UNRECOGNIZED SYMPTOMS OF EYE-STRAIN.—Starr (*Jour. A. M. A.*) calls attention to frequent symptoms of eye-strain other than headache. One of the most common of these is pain in the back of the head. This sensation is often described as a pulling or drawing, or a tense feeling. The pain, radiating down the back and to the shoulder, is frequently mistaken for rheumatism. He considers this condition as almost pathognomonic of eye-strain, as it is frequent in about eighty per cent of all cases of refractive error presenting themselves. Another symptom which he classes under this head is mental confusion, or confusion of ideas, or an inability to fix the attention upon a particular object of thought without great effort. Patients not infrequently speak of this symptom, and observe that it is more troublesome the more the use of the eyes is demanded in the performance of their task. Closely allied to this condition of disturbed mental processes, and possibly in part depending upon it, is mental inaptitude or backwardness in children. He also mentions as probably the most frequent of all the results of eye strain, disturbances of the digestive apparatus.

Digests.

INLAYS, THEIR ADVANTAGES AND LIMITATIONS.—By C. N. Johnson, D.D.S., Chicago. Read before National Dental Association, July 10, 1900. The demand for inlay fillings arises chiefly from two factors which present themselves in the problem of saving the natural teeth when badly affected by caries. The first of these relates to the unsightliness of most metal fillings when exposed to view in the anterior part of the mouth, and the second to the fact that in many instances of extended caries the insertion of foil fillings proves too great a tax on the patient.

There are certain cases where, by the judicious use of inlay work, ideal results may be obtained, but there are a vast number of others where the conditions are such that inlays can not by any possible means be made artistic and permanent. In alluding to the artistic features of inlay work reference is of course made to porcelain inlays, and it is doubtless true that a properly constructed porcelain inlay is more artistic in appearance than any other kind of filling-material. But when this is said, almost all is said that may be in recommendation of this kind of work. The simple fact is that in the very cases where the greatest need is manifest to avoid conspicuous operations porcelain fails in other important requisites to a degree which renders its use almost prohibitory.

For instance, in a long, thin, translucent central or lateral incisor with an approximal cavity which involves the incisal angle, we have a type of case which calls not only for harmony of color, but for some material which possesses great strength in a given bulk. It is here, if in any place, that appearance is important, and in no less a degree is it necessary to reproduce the lost angle with a substance which is capable of withstanding attrition and not suffer displacement or fracture. Porcelain, when carried out into thin edges, such as are sometimes called for in these cases, has not the requisite strength or toughness to do extended service in the majority of mouths. It will not do to point to a few isolated instances where porcelain has proved satisfactory in such cases, and argue therefrom that it is always to be depended upon. In some mouths the volume of usage on a given tooth is very small, and any kind of a filling-material will do service, but these are the exceptions.

It must be acknowledged that a perfectly condensed gold filling is infinitely tougher and less friable than porcelain, yet even the best inserted gold fillings are sometimes inadequate to the strain. Then the question of anchorage is often an important factor in these fillings. With the incisal angle gone and the necessity existing for its reproduction, a certain area of the inlay is exposed directly to the force of attrition, and the anchorage afforded by the cement can not be considered sufficient to maintain the inlay in place for any extended use. It has been found that in the insertion of gold in these cavities, with all the nicety of adaptation possible, and with the greatest density and strength, failures have too frequently occurred through displacement of the filling from the incisal anchorage, so that observant operators are quite generally resorting to the plan of anchoring these fillings by drilling across the incisal portion of the tooth and making an anchorage at right angles with the approximal cavity. This seems the only certain method of locking these fillings securely in place, and it is a method which can not in ordinary cases be successfully followed with porcelain. Even in those instances where a perfect alignment and form can be given the inlay, the lack of strength at point where approximal joins the incisal portion is always an element of weakness. The filling-material must be especially tough at this point to prevent breakage, and, as has already been intimated, porcelain is too friable to be subjected to this kind of stress.

Another important factor in these cases is the protection of thin enamel. With gold—or better yet, with platinum and gold—a wall of enamel may be adequately protected by building the filling over it to the thickness of one-half a millimeter, while porcelain, to afford any protection whatever, must be laid on in appreciable bulk. At best porcelain must be considered a poor protection to thin enamel-walls, even where it can be successfully built over them.

It will thus be seen that in many of these very conspicuous cases the indications are almost wholly against porcelain inlay work, so far at least as permanence of result is concerned, and in passing it may be well to call attention once more to the possibilities of platinum and gold in this particular class of cases. The shade may be so varied with this material as to take away the extreme yellow luster of gold and produce fillings which are never glaringly conspicuous, and which are immeasurably more reliable and secure

than the best possible porcelain inlay. A closer study of this material on the part of the profession will accomplish much in the way of disarming the persistent criticism against display in American dentistry, a fact frequently pointed out by our good friend, Dr. H. J. McKellops. And yet, as has been stated, there is no metal filling which can quite take the place of porcelain in appearance, and it should be our aim to study the possibilities of porcelain and adapt it to those cases where the indications are favorable to its use.

Such cases are represented by all cavities which are not exposed to attrition, but which are freely exposed to view. Those with a broad opening to the labial—particularly those occurring in the gingival third of the labial surface—may be accounted typical cavities for porcelain inlays. It is here that artistic and serviceable work may be accomplished, provided the operator attains a mastery of shades. This question of shading becomes a matter of very great importance in its relation to artistic results, and this, if there were no other reason, should determine the selection of bodies for such work which fuse at a temperature sufficiently high to assure permanence of color. The bodies which are capable of being fused on gold can not be relied on to permanently maintain their color in the mouth, nor are they so strong in the given bulk as the higher-fusing bodies. If porcelain inlays are indicated at all, the very best and strongest and densest porcelain is none too good for the purpose. The present clamor for short-cut methods in this kind of work is calculated to lead to such imperfections as will eventually bring the work into disrepute, and throw doubt on an otherwise legitimate line of practice.

The indications for inlay work, aside from esthetic considerations—viz, the undue tax on the patient in the insertion of large foil fillings—apply particularly to molars and bicuspids. It is here that inlays really may be made to answer the most useful service. In cases where an appreciable portion of the crown is gone inlays of gold may often be inserted to good advantage, and thus save the patient the tedium of a protracted filling-operation. These inlays of gold may be used in very many cases where operators have been in the habit of crowning teeth. It is often a nice point to decide where fillings shall stop and crown-work begin, but if the operator has a true conception of the possibilities of gold inlays he may frequently save himself any doubt in the matter by employing this

ready method of closing the gap between filling and crowning. A tooth with any appreciable portion of the crown missing has in later years quite generally been consigned to excision of the remaining portion for the purpose of inserting an artificial crown, quite irrespective of the condition of the part still standing. This is hardly living up to the highest possibilities of dentistry, because the history of crowns in the years to come will go to prove that the best interests of the patient will be conserved by deferring crown-work as long as possible. The serviceability of many a tooth may be prolonged for years by the judicious employment of inlays in those cases where there has been so great a loss of tooth-tissue as to make the insertion of a filling injudicious. The tenure of service of the inlay may be logically added to the ultimate life of the tooth, from the fact that when the inlay fails the tooth may then be crowned with as great a promise of future usefulness as if it had been crowned at the outset. In pursuance of our work upon the natural teeth we should have in mind not only the comfort of the patient at the moment, but the greatest ultimate length of service that we can secure for the organs operated on.

One very favorable feature of gold inlay work relates to the adequate protection it affords to weak walls surrounding the cavity. It is in this respect that gold inlays are vastly superior to porcelain inlays. In preparing cavities for gold inlays the frail enamel may be freely ground and extensively beveled with the assurance that the edges of the inlay when built over them will prove an all-sufficient protection against wear or fracture from impact of mastication. In fact, this is one of the cardinal requirements in preparing these cavities, that the margins of the cavity, particularly those in the occlusal region, be very freely beveled so as to admit of a perceptible overlap of the inlay. A degree of bevel may safely be given the enamel for these inlays which, if employed for foil fillings, would prove an element of weakness to the margins.

Another feature connected with these extensive bevels would seem worth mentioning, viz., the fact that the cementing substance used for holding the inlay in place appears to be in a measure protected by the overlying margin of the inlay. If these cases are carefully examined some time after their insertion it will ordinarily be found that the cement is dissolved out for a short distance under the extreme margin of the inlay, but that the dissolving out seems

to stop at this point and does not penetrate far enough to jeopardize the inlay. This has been noted so frequently that it has proved a matter of considerable encouragement, so far as the permanency of cement under gold inlays with extensive bevels is concerned.

It was formerly the impression of the essayist that the cementing material was invariably an element of weakness in the use of inlays, but a more extended observation would seem to indicate that we have little to fear from this, particularly with these gold inlays and a high-grade quality of cement. It is with inlays, as with every other line of our work, that the real test after all is the test of extended practical experience, and no amount of preconceived opinion can have weight against this kind of evidence. So many of these gold inlays have been examined after years of service, nearly all of them presenting this peculiarity, that it would seem impossible to doubt that where due care has been exercised in the adaptation of the inlay and a good grade of cement used, little fear need be had as to any serious washing out of the cement.

But as to the relative merits of fillings and inlays in general, it may be stated that in the vast majority of cavities presented for our treatment fillings are infinitely more serviceable than inlays. The requisites for inlay work are in many respects so arbitrary as to prevent the possibility of its being at all universally applicable. A cavity must be cut in such a way that the orifice is more widely extended than the interior, and in many instances this involves the breaking down of strong walls which with ordinary filling-operations might be allowed to remain. For instance, in an approximo-occlusal cavity in a bicuspid where the decay has extended well around to the buccal and lingual surface at the gum-margin, but where the walls of the cavity are strong and well supported near the occlusal region, it would be a very radical procedure to cut away the buccal and lingual walls parallel with the decay in the gingival region, as would be necessary to properly fit an inlay. It would not only be a tax on the patient, but would materially weaken the tooth. This is only one of the many cases where a perfectly fitted inlay would involve too serious a sacrifice of strong walls, and this may be said to apply as well to incisors as to bicuspids and molars.

There are numerous cavities which may be made to receive a foil filling without any exposure to view, but which if sufficiently

opened out to receive an inlay would thereby be rendered conspicuous. In fact, in the majority of cavities the insertion of an inlay involves the extension of the cavity outlines to a degree unnecessary in an ordinary filling; and while this extension is often a safeguard against a recurrence of decay in bringing the line between inlay and enamel to a point where it is readily kept clean, it sometimes leads to unnecessary exposure of the operation. No method of reproducing lost enamel can ever quite equal in appearance the natural tooth-structure, and the less conspicuous our operations are made the nearer we are likely to approach artistic perfection in our work.

One other factor in connection with inlay work relates to the greater expenditure of time necessary where inlays are used than when ordinary fillings are inserted. It is true that the element of time is a minor matter when considering the accomplishment of the highest class of service to our patients, and yet in the daily routine of office practice time becomes important. With a cavity of average size it is conservative to state that a gold filling may be inserted in one-half the time required for an inlay, and the resultant operation will at least prove equally permanent, so that this feature of the case can not well be ignored.

It may therefore be said in conclusion that the legitimate use of inlays is quite narrowly restricted to those exposed surfaces where artistic effects are very important, and to the cases where the tooth-tissue is so extensively broken down as to make the insertion of a foil filling too great a tax on the patient. To employ inlays outside of these indications is either to misconstrue their true function, or to let enthusiasm overbalance judgment.—*Cosmos, Sept. 1900.*

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AMPUTATION AND LONGEVITY. A prominent manufacturer of artificial limbs says: "By looking over books which comprise the history of many thousand cripples we arrive at the conclusion that dismemberment plays no part whatever in shortening life. Our records date back to 1853, and it is an astonishing fact, that of the entire number of our patrons less than 25 per cent have died, and most of those from old age or accident; and in no case can we learn of a death that can be directly ascribed to the loss of a limb. As we investigate this subject more thoroughly we are persuaded that amputations enhance vitality; render it not only probable, but positive, that on account of amputations the lives of the

subjects will be prolonged and free from disease." No record can be found of a cripple becoming insane, and but very few cases where they have committed suicide. The mental as well as the vital forces appear to become strengthened by the dismemberment.

It is a noticeable fact that persons who lose their legs become very powerful in their arms, large in chest, and great in girth, and persons who lose their arms become powerful in their legs and large of girth. The loss of parts of the body conduces to health, life and development. Dare, Melrose, Conway, Leland and Fitzpatrick, one-legged acrobats whose muscular developments are the envy of the world, have never been surpassed by athletes with natural limbs.

A reasonable explanation may be found in the hypothesis that the removal of a part of the body lessens the demand on the vital forces and permits the supplying reservoirs to contribute more abundantly to the remaining members. If it overtaxes the heart to force the blood through all the avenues of the body, will not its labors be lessened if a few of those avenues are forever removed? And will not the remaining avenues receive a larger proportion of the life-giving essences? If the nervous system is overburdened, will not the tax be lessened if a part of the nerve organization be removed? If a tree be permitted to grow, it will sap itself by the many choking branches that come from its trunk. The cutting off of these branches and the trimming up of the limbs always gives new vigor to the tree. It will grow larger, stronger and will live longer. A cripple is not a pessimist. His misfortune has driven from him whatever there may be of the misanthropic. His health is always good, and he is happier and more contented than the dyspeptic or rheumatic. Nature, with her usual generosity, compensates for misfortune. Those who seem the most afflicted are often happiest; their minds have been prepared to endure misfortune.—*Med. Age.*

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GASOLIN AS A DETERGENT. By Bruce L. Riorden, M.D. I have been using gasolin for the past four years in cleansing the field of operation, in cleansing traumatic wounds and in the subsequent dressings of all classes of wounds—not using water or other lotions or solutions. I was led to use gasolin, first, for the purpose of cleansing from injured parts what railway employes call black oil. While working an accident occurs—fingers are crushed, for instance. The injured person comes under the surgeon's care. His

first duty is to see that the injured parts and the surrounding tissues are made surgically clean. Soap and warm water with a brush have been the usual means employed; also ether, alcohol, etc. I found the process to be slow, painful and not always thorough, as we understand surgical cleanliness, and the idea of using gasolin as a detergent readily suggested itself—as this substance has been used for years to cleanse grease-stains from clothing, gloves, etc.

I find that it does not irritate fresh wounds or granulating surfaces—any more than water does. It is best applied by taking an ordinary "wipe" of cotton batting or sterilized gauze, and wiping the parts. The gasolin immediately evaporates and leaves the surface dry and perfectly free from grease. This will be found an advantage where sectional strapping by adhesive plaster is to be used, as the plaster adheres much more firmly when the skin is free from any oily substance.

My results, so far as early healing and absence of infection are concerned, have been most satisfactory, and include the treatment of all classes of wounds, and I cannot too strongly recommend to the members of this association gasolin as the best surgical detergent.

I am indebted to my friend, Dr. Goldie of Toronto, who is a practical bacteriologist, for the following notes on its action as a detergent and antiseptic. He says: "Weighed scrapings from the same arm from areas roughly two square inches were plated out, after washing with soap and water for five minutes and after scrubbing with gasolin for two minutes, also without any preparation. Unsterilized skin gave 173 colonies, soap and water scrubbing gave 20 colonies, gasolin, 2 minutes' scrubbing gave 16 colonies. Scrapings from skin—scrubbed with soap and water, then dressed with 1 to 60 carbolic acid over night, gave for same weight of scrapings 22 colonies. Gasolin poured on skin without rubbing gave 84 colonies; repeated with scrubbing with cotton wipe gave only 7 colonies. Staphylococcus pyogenes aureus smeared on the skin as a film remain alive at the end of two minutes exposed to gasolin."

I need hardly caution the members about the dangers of gasolin, but would just remind them that it is very inflammable, so should not be used carelessly about an exposed light. If it gets into cavities, such as the ears or eyes, it is irritating, just as chloroform or ether is. If applied to a surface where it can rapidly evaporate, t gives a cooling, pleasant sensation.

In subsequent dressings of wounds you may find the dressings adherent about line of incision or suture. Squeeze a few drops of gasolin on the adherent dressing and you will find that it can be readily detached. If you want to remove sutures from wound, and they are masked by iodoform and exudations, gasolin on a wipe, gently applied, will clear your field. It dissolves iodoform and exudation, then immediately evaporates, leaving a clean, dry surface. You can readily find your sutures and remove them.

Microscopic appearance of the skin after scrubbing with soap and water, and after wiping the skin with gasolin, showed that the cleansing effect of the latter went much deeper and cleaned out hair follicles, sebaceous glands and sweat ducts much more perfectly than the former could do.—*Railway Surgeon, April, 1900.*

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CONSCIOUSNESS DISAPPEARS THUS. Among the physiological effects the following are the principal. The respiratory rhythm is accelerated and irregular, pulse more feeble and less frequent, arterial tension and temperature abated, blood becomes black, diminution of red globules, increase of white; these phenomena are well known. The accompanying physiological phenomena may be ranged chronologically in four groups: First, heaviness or dullness, numbness or torpor; second, disassociation and abolition of the different forms of sensibility; third, loss of consciousness; fourth, muscular relaxation, or the anesthetic of motility.

The cutaneous sensibility is the first to be affected, and delicacy of touch is at once lost, next sensibility to pain and to heat and cold. Then the grosser touch, or sensibility to contact. This anesthesia proceeds from the extremities to the trunk, then it affects the upper part of the thorax and the abdomen, then finally circumscribes the cephalic region, neck, forehead, left temple, afterwards the right.

A very curious and little known fact—sensibility does not give way from the two sides at the same time, but the hemianesthesia is established first on the left and extends by degrees to the right. The last organs affected are the cornea, and the part of the buccal mucous membrane near the cuspids. When these points are touched the anesthesia is complete.

In the same order the loss of sensibility involves muscular relaxation. The masseter is the last muscle to yield, and pupillar reflex

continues to the end. When the general sensibility disappears, the insensibility necessary for the surgeon is complete. There sometimes, however, remain traces and residua of tactile sensibility, and a certain profound and muscular sensibility.

As regards the special sensibilities, they are less spontaneous and yield later at the time of muscular relaxation. This condition continues long; tremulous vibrations similar to those received by the touch from a vibrating body or a large sonorous clock are heard. These acoustic phenomena, in the majority of persons, seem to constitute the foundation of anesthetics, and they assume importance in proportion to their progress. They seem at first as though the tympanum were put in vibration with roarings, sounds of clocks, incessantly increasing to a volley of sound, sometimes aggravated to a crash, and again attenuating in rhythm, ending finally in sleep. These roarings continue some time after general cutaneous anesthesia.

Vision, too, preserves some functional action, surrounding objects begin to be agitated, and a thin veil intervenes between the exterior world and the visual sense. The other senses yield by degrees, taste, sensibility to tickling, perception of odors, etc. If creosote be presented, in the case of chloroform, the substitution is not perceived. In fine, in the gradual enfeebling of the senses, almost to obliteration, all are overwhelmed by the power of the acoustic sounds. Lingual difficulties manifest themselves, words fugitive or incapable, evanescent ideas, and, if thought is possible, it is maintained with great difficulty. Sometimes there is an increasing diminution of attention and an impossibility of fixing it, sometimes a feeling of physiological impotence, as if all the organs were removed, and all action become impossible. It is this feeling that renders anesthesia sometimes so agonizing.—*Revue de Hypnotisme.*

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TEXTURE OF PRESENT OR FUTURE DENTINS CAN BE IMPROVED. By E. L. Clifford, D.D.S., Chicago. About twelve years ago Mrs. P. called my attention to the condition of the teeth of her first child, a girl two years old. It was a case of extremely defective structure, early decay and many alveolar abscesses. Hygienic treatment, local and general, was employed, imperfectly of course, but the best was done that could be at that age. No tooth was extracted, but one by one each received the proper care. All the elements of natural therapeutics that possibly could be utilized

were taken advantage of, the food received attention, open air and exercises were enjoined, the patient put on an antirachitic course of cod-liver oil and calcium lactophosphate.

The second dentition is full, regular and of good texture, only two teeth requiring fillings up to this time and those the first molars. The teeth of both parents were exceptionally poor, the father at the age of 35 wearing a full upper bridge with a partial lower one, and the mother with few teeth without one or more fillings. I cannot in this family eliminate certain elements of heredity, and looked for defective structure in all of the offspring.

Two-and-one-half years after the birth of the first child the second daughter came. Being in close touch with this family, and having aroused their interest in the possibility of improving the dental organs, I was informed, as I had requested, when the mother was again enciente. Her physical condition was made the object of deep interest, and I succeeded in obtaining an extra effort on her part to live a strictly hygienic and physiologic life during that period. The food was carefully selected, surroundings given careful attention, emunctories properly stimulated, alimentary tract kept in as nearly aseptic condition as possible, mind freed from care and in the midst of as pleasant social surroundings as possible, while open air, sunshine and exercise received due attention. A teaspoonful of lime-water was introduced with the food each alternate week during gestation.

The child at the age of eleven and one-half years has never required a filling in the permanent teeth, although I did fill one or two of the deciduous. After a lapse of seven years the third daughter was born, and now at two and one-half years of age has as perfect a dental apparatus as could be desired.

Is this all accident? And would these same results have been obtained without attention?—*Alkaloidal Clinic, Oct. 1900.*

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CHEMICAL EROSION OF THE TEETH. By Dr. Leon Frey, Paris. Read before the International Dental Congress, at Paris, August, 1900. "Chemical erosion," quoting from Bödecker, "is a term applied to express a process by which the teeth are eaten away and destroyed, principally upon the labial surface, and near the cervical border." It is characterized by its hardness and its polish. American authors apply the name abrasion to mechanical wear of

the teeth, and give the name atrophy to those congenital structural affections which in France are known as erosions.

Description. On those large, white, glittering teeth not covered with tartar, usually near the neck, sometimes even on the face, there occurs a loss of substance which originates in a point very limited, but little by little increasing in size. The little hole or groove becomes progressively an excavation, as though cut out with a punch. Ordinarily like a cup vertical to the tooth, the erosion presents an appearance triangular at the summit, directed towards the pulp, and in a rounded base. Its dimensions vary, and may be limited to a horizontal loss of substance, a groove at the neck, or it may attack the whole face of the tooth, invading the whole of the crown. An observation of Michaël's describes a right upper cuspid with the whole of its labial surface eaten away for nearly half its height, like the mouthpiece of a flute. These defects appear most frequently on the labial surface, sometimes on the interstitial surfaces, and more rarely on the lingual. Their borders are sharply defined as though cut with a saw, and the lower is always more accentuated than the upper; sometimes, however, they are blunted. The surface more usually appears glittering and polished. To the naked eye not the least irregularity is to be seen, though Znamensky has shown under a strong glass that certain saucer-shaped cavities are visible. In certain cases these cavities are more sharply defined and visible to the naked eye. On the number and size of these depressions depend the modifications noted on the surface of the affected parts, as at the bottom the brightness and glitter is gradually lost, and may give place to a rough and uneven surface.

The color of the erosion is variable, and usually it is the same as the tooth, polished and glistening, but it may also be dark yellow, or brownish, or even almost black. The same place may present several colors; the center is dark, and the circumference lightens, and gradually blends with the normal tints of the tooth. The consistency varies in like manner, and the darker the center the more resistance it offers to scraping. When the surface is rough it is less hard and less sensitive. This sensitiveness is apparent on the approach of anything cold, of sugar, of acids, or to the contact with an instrument, a brush or the finger-nail. The sensitiveness of the surface eroded is not always the same; when the dentin is not discolored it is very sensitive even to a very slight touch, as that of the

nail; but if the dentin is dark or brown the sensitiveness is less quick. This, while it varies in different erosions, varies even in the same erosion, which may be more sensitive during a period of nervous excitement, or an attack of dyspepsia. In the latter case it may be a question of hyperacidity of the saliva, or a secondary nervous excitability.

The author then goes into the question of how the erosion develops. First, the gum begins to be retracted; according to Bödecker the gum is always inflamed and retracted; the neck of the tooth is laid bare, and a layer of cementum disappears, exposing the dentin, on which form little saucer-shaped cavities separate one from the other. This erosion deepens little by little, but its progress is usually slow, although on teeth not very strongly organized, as Znamensky says, it rapidly deepens. Then commences the reaction of the pulp by means of secondary dentin, which sometimes forms in such abundance that it completely refills the cavity. It may happen, however, that the erosion gains in depth in spite of this secondary dentin, until it reaches the other side of the tooth and destroys the crown, and when the progress of the affection is rapid, even though it may last several years, the pulp may never gain the time to defend itself, and so inflames and mortifies.

Front teeth are more frequently attacked than those behind, and, according to Franck, the right rather than the left; cuspids, according to Bödecker are more liable than incisors, though Black directly differs from him. With regard to the number attacked it also varies, and one tooth only may be attacked; though cases are cited where all the teeth have shown signs of chemical erosion. Again, the same tooth may be attacked in several places, and those of the upper jaw more frequently than the lower. Frequently also similar teeth are attacked in both jaws; when the arch is irregular those teeth forced inward are rarely affected.

The author then turns to the etiology and treatment of chemical erosion. The treatment he divides into three main headings: (1) General medical—as anti-arthritic, anti-rheumatic, and anti-gout. (2) Local medical treatment—as the application of a soft brush, or at least by being careful to brush lightly over the surface of the erosion, the employment of alkalin dentifrices, of antacids: gum arabic and saccharin (Paul.) (3) Surgical treatment; in regard to the lips: ignipuncture of the labial glands (Michaëls); in regard to

the teeth: to reduce the sensibility of the erosion; by cauterizing by nitrat of silver, by chlorid of antimony, which has the advantage of not blackening teeth; by filling the cuneiform erosion, using gold by preference, and by capping teeth in certain cases.

* * *

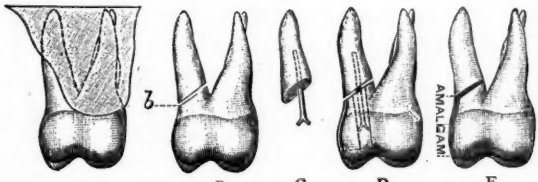
PORCELAIN ROOT SUBSTITUTED FOR DISEASED ROOT OF A MOLAR. By Dr. M. L. Rhein, New York. Read before N. Y. Odontological Society, April 17, 1900. The two artificial roots I exhibited in the mouths of two patients at the clinic this afternoon may be described as "heteroplasty following the amputation of the natural roots." The name "heteroplasty" is the one commonly used by the general surgeon, and signifies the substitution of some foreign substance for some removed portion of the human body—for example, the placing of an artificial bridge in the nose. I had intended to defer making this operation public for some time, but changed my mind for fear that if I waited too long I would find some one patenting the operation at Washington, thus adding one more patent to the already numerous list. In order to prevent the occurrence of such an incident I deemed it wise to make a preliminary exhibit of the two cases to-day, although the first root has been in place only six months.

The operation of amputating a root of multi-rooted teeth is not new. Its value is well known in those teeth where all the alveolus around one particular root has become absorbed, and where the root remaining without any bony covering is nothing more nor less than a foreign body. In such cases it becomes a menace not only to the remaining good roots, but also to the surrounding teeth, and is very injurious to the health of the patient, as any one may imagine who saw me to-day squeeze pus out of the palatal socket of the corresponding molar on the opposite side to which the heteroplasty was performed. For almost every gentleman who looked at that mouth I was able to squeeze some pus from the socket of the unoperated tooth, showing the necessity of removing the palatal root from this molar. That the gum around the artificial palatal root on the opposite side was in a healthy condition was made evident by the inability on pressure to produce the slightest degree of any exudate. By means of these crude drawings I will endeavor to illustrate the technique pursued in these operations.

Fig. 1 represents the method followed on an upper molar, as in

the cases shown this afternoon. A nearly indicates how the molars of both of these cases presented themselves before the operation was performed, showing about half the palatal root to be exposed. The pulp was first removed and the roots filled. In the tooth in the young woman's mouth the pulp was alive when she first presented herself, although there was absolutely no attachment to any portion of the palatal root. With an ordinary fissure drill it takes but a very few minutes to sever the root from the crown at the point indicated in B. You will find the roots in this little box which I pass around, and also duplicates of the porcelain roots which replace them. The porcelain root as shown in C is made in the following way: The amputated root is covered by fine paraffin, in order to

FIG. 1



make its surface thoroughly smooth. An impression in plaster of the root is then taken in two halves, as in order to obtain the best results it is necessary that the porcelain substitute should be baked in two separate parts. With these impressions we next proceed in the same manner as in making an ordinary porcelain inlay. We now have two platinum matrices, each one representing a portion of the shape of the desired root. The sides of each matrix are first stiffened by baking a little porcelain on it; more is then added, and before the body is flush with the top of the matrix the platino-iridium pin which is to enter the crown is placed in proper position in one of the matrices. After the two parts are completed, the sides which are to come together are ground so they will fit accurately in the same manner that we would grind a porcelain tooth in order to obtain a proper joint. The platinum is then stripped from the half without the pin, and the surplus platinum from the remaining matrix burnished around this half in order to keep the two parts in perfect juxtaposition. The sides, having been previously painted with a thin film of body, are then placed in the furnace and fused together. The platinum is now stripped, any little sharp

edges around the joint are removed by grinding, and the entire surface painted with a very thin film of body. It is returned to the furnace for the last time, and the heat turned off just prior to the stage of glazing. This leaves the artificial root a very good reproduction of the amputated model, as shown in C. We enlarge the cavity in the crown of the tooth, D, so as to include the palatal sulcus, which would be found necessary in order to permit the pin to enter the crown. The porcelain root is then placed under the gum where the old natural root rested, and the pin drawn up in position against the crown of the tooth. Care being taken to have the part thoroughly dry, *Fellowship* alloy, mixed soft, in sufficient quantity is then forced into the crown of the tooth and in the interstices around the root, making a joint such as was seen in the young woman's mouth this afternoon. The finished operation is shown in E.

FIG. 2.

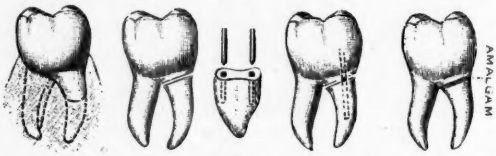


Fig. 2 exhibits the operation of replacing the amputated anterior roots of a lower molar. A is a fair illustration of the root prior to amputation, showing the gum-line and amount of the exposed portion of anterior root, the dotted line showing amount of root supposed to still remain underneath the gum. I had this case under treatment three years, trying in vain to get it in a healthy condition. Although the deposits were frequently removed, yet as I pass around the amputated root the very extensive deposits all over the end of it are manifest. This was the only tooth in this patient's mouth that was apparently involved by any form of this lesion. Some months ago the pulp, although living, was removed, but no benefit to the anterior root resulted, as it was already nothing but a foreign body; and a constant exudation of pus remained which could not be relieved in any manner. The root was amputated at the point shown in B, but the technique of the heteroplasty was somewhat changed. Instead of baking the platinum pin in the root, there were baked in the root two platinum boxes corresponding to the position of the two root-canals. Two platino-iridium pins were

made to fit these boxes; the root and pins are shown in C. The advantage of this method consists in there being no necessity of removing any portion of the sides of the tooth, and thus preserving a much stronger natural crown. The artificial root being now placed in position, and everything being thoroughly dry, the boxes are filled with cement. D shows the pins being forced into the soft cement in the boxes. The crown cavity is now filled with *Fellowship* alloy, sufficient of which is forced between the artificial root and the stump of the crown to make a proper joint. The completed operation is shown in E.

We claim for this operation that we replace a disorganizing organic material by an absolutely aseptic inorganic material, that can not be acted upon by the fluids of the mouth. Five months of observation have evinced the fact that the health of the gums around these roots becomes constantly better. The gum in its efforts to shrink contracts tightly against the porcelain root, holding it firmly in position, and thus preventing the entrance of any extraneous matter. In every case the flow of pus has immediately ceased after the insertion of a porcelain root.—*Cosmos, Sept. 1900.*

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MEDICINAL OR MECHANICAL. By W. D. Cowan, Regina, Canada. Most of us find a certain attractiveness in the *Materia Medica*, and we are very apt to fly to it to discover a means of overcoming the difficulties which confront us. Too often, I think, do we take to drugs to the exclusion of less harmful, if more mechanical, methods of securing a desired result. The *Materia Medica* contains many formulæ of absolute necessity to the dentist, but there are many things in the realm of mechanics which can often be employed just as advantageously, if not more so, but which seemingly are ignored largely because they are too simple to employ when an exhibition of learning can be made, or are too far beneath the dignity of a dentist.

Take first the hemorrhage from tooth extraction. When this occurs the patient usually returns to us and gravely suggests the possibility of danger from an excessive loss of blood. Of course the dentist does not concur in that, but immediately seizes his box of tannin or a solution of that drug, or probably one of the preparations of iron. No matter what his favorite prescription is, he straightway proceeds to use it, meanwhile employing language

about these drugs that is Greek to the patient, and occasionally slow and ineffective as a means of stopping the hemorrhage. One thing, however, that is very likely to have happened is, that the mouth is left in a most disagreeable condition because of the astringent and other properties of the drug employed, or probably pain is occasioned by plugging the cavity with absorbent cotton saturated with the styptic used. It is not an unusual thing for a patient to complain for hours afterwards because of the discomfort caused by the use of these drugs. It may be said that it is pure carelessness in the use of them that permits this, but I have seen such a result after the patient has passed through the hands of very careful men.

It is, indeed, a very exceptional case of hemorrhage that can not be stopped in a mechanical sort of way. In fact, I have not yet had a case that was not stopped in less than three-quarters of an hour, usually in a few minutes. By taking a small amount of cotton between the thumb and finger, placing it over (not in) the bleeding cavity, then exerting a gentle pressure thereon (first, however, having removed all the external coagulated blood which usually gathers in a more or less stringy condition), and maintaining the pressure for from one to two minutes, then allowing the air —for air is almost an essential to coagulation—to reach the cavity for an instant, and then returning the pressure, repeating this until the cavity is filled with a natural coagulated mass, the desired end will be attained without the use of any drug whatever.

Or let us take the case of a sensitive palate, of which we wish to get an impression, but can not, because of the nausea induced. The usual resort is a quarter or half-grain cocain tablet allowed to dissolve gradually in the mouth. Whatever it be, some drug of like effect is usually administered. Sometimes they are successful —not always. Generally the result is to allay the sensitiveness in part only, so that we take the impression with difficulty. The patient goes through a series of gymnastics with his head and body; every muscle is placed in motion; the head instead of being kept firm, is quickly jerked in all directions, so that the hand holding the tray can not follow it. The result is that, even though we can not detect it, the impression has moved and is not accurate, consequently is useless if we wish perfect work. We make the plate, but even if it fits snugly there is still a certain amount of nausea when

the patient comes to wear it, and for some time we are kept in misery by her frequent visits and tales of woe. If, on the other hand, the plate does not fit accurately it still further adds to the nausea, and the difficulty and annoyance is increased. Briefly, the drugging method is not always a success. Better take more time, even if it cause delay to the patient, and adopt measures which will insure an accurate impression and a correspondingly good-fitting plate.

It may seem a clumsy, backwoods method, but I have found the best way to handle this class of patients is to take from one to three weeks to prepare the mouth. I have discarded drugs altogether, and use only an ordinary sheet of pink wax to secure that condition where an accurate impression can be taken and a plate subsequently worn. It is a fact that a person with a sensitive palate who has worn a plate for a short time can then endure an impression without trouble. My method is based on this fact. By taking a sheet of wax, heating it over a spirit-lamp until it readily yields to pressure, and then with the fingers pressing it upon the palate, and around the buccal and labial portions of the arch until it conforms to the mouth just as a base-plate would, you can get one of the most agreeable artifices imaginable. The most sensitive person will permit of it being done, for there is nothing of a nauseous nature about it. It is smooth to the tongue, fits itself nicely into the rugæ, is thin and light, can be worn with care sometimes for a couple of weeks, and acts in a capital manner to accustom the wearer to an unnatural substance in the mouth, and to prepare her for the larger and more nauseous denture. It is seldom that a person who has worn one of these wax plates for even a couple of days can not endure to have a proper impression taken.

I have used these same wax plates to advantage immediately after a major case of extraction. I assume that where a full upper set has been extracted it is the prevailing practice to at once take an impression and order the person to return next day for the plate. The intervening time is not one of comfort to your patient. It is also a common thing for the patient to dread the insertion of the plate on exceedingly sore gums. But it is usual to find that, instead of hurting, the insertion of plate eases the pain. Acting on this, it has been my practice for a long time to make a wax base on the impression I have taken, place it in the mouth, and tell the

patient to wear it until she returns on the morrow. Of course it must be removed while eating. You would be surprised at the amount of comfort they extract from an artifice of this kind, and you would be still further surprised to find how much less inflammation there is where this contrivance is worn. Furthermore, it takes the rough edge off the wearing of a plate, so that when patient comes on following day she is already partially prepared for the inconvenience of denture. If I had to choose between one of these and the drugs usually used, I would refuse the drugs, especially in a case where patient had any driving to do to get home, as is frequently the case.—*Dominion Jour., Sept. 1900.*

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EXPANDING THE LOWER ARCH. By V. H. Jackson, D.D.S., New York. Fig. 1 illlustrates an arrangement that was used for broadening the lower arch in the case of Miss G., aged 13

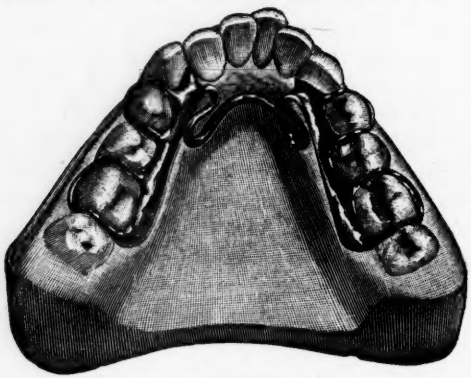

Fig. 1.

years. The appliance was constructed on a plaster model of the teeth, by shaping gold partial clasps No. 34 gauge with contouring pliers to fit the lingual sides of all of the teeth to be moved. Crib springs were then made to encircle the first bicuspids and the first molars, forming crib attachments for anchorage. A spring base wire, No. 14 gauge, was shaped so that about one inch of wire, more or less, followed the lingual curve of gum serface back of lower teeth, considerably below the line of gum margin, but not low enough to interfere with the action of the tongue. Each end of the wire was bent forward upon itself, and again backward, being

drawn into close but gentle curves forming the shape of the letter S as seen in the figure, with the distance between the loops in each of the S-shaped sections about one-half inch. The ends of the spring base-wire were then fitted to the partial clasps with the ends of the crib springs on either side of the arch and soldered with a high grade of soft solder with a soldering iron. Having the base-wire shaped into the form of a letter S on each side of the median line in this manner permits the necessary changes for broadening the arch without warping the apparatus, or interfering with the established relationship of the anchorage portions with the teeth that they are made to clasp.

The action of the apparatus is caused by changing the shape of the loops in the spring base-wire from time to time by bending them outward in the following manner: Hold the end of one of the lower loops firmly with flat-nosed pliers, and bend the wire by pressing outward the crib portion a little with the hand. Then take the corresponding upper looped portion of the wire in the pliers, and hold firmly with the other hand the short central part of the wire that rests back of the front teeth, and press outward with the pliers a little to bend this part of the loop to correspond with the first.

When it is desirable to again change the appliance for causing more pressure, the double loop on the opposite side of the median line should be bent the same as described, usually making these changes about once or twice a week. In some cases, however, the force is changed but once in two or three weeks.

The same or a similar appliance is used for retaining the teeth when the regulation is completed. If the incisors are not in good line after the arch has been expanded, a finger spring can be soldered to the crib portion on one or both sides of the arch to extend forward and cause force for their correction.—*Items, Sept. 1900.*

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CAST ALUMINUM PLATES. By Willard Streetman, A.M., M.D., Cleburne, Texas. Read before Kentucky State Dental Association, Louisville, May 29-31, 1900. A few words with regard to the history and properties of aluminum will not be amiss. "Sir Humphrey Davy inferred, from his discovery of sodium and potassium, that alumina was the oxid of a metallic base. This conjectural metal, named aluminum, was consequently discovered by Wohler, but remained for more than twenty years a mere chemical

curiosity, until in 1854 St. Clair Deville succeeded in manufacturing it in large ingots by the action of sodium upon the chlorid of aluminum; but the cost of metallic sodium made this an expensive process. The great majority of all rocks, except limestone, quartz, sandstone and other highly silicious minerals, contain alumina; and it enters into the composition of all clay and slate rocks; hence, next to oxygen, which constitutes one-half of the globe, and silicon, which forms one-fourth, alumina is the most universally diffused of all metallic oxids, and aluminum is the most abundant of all metals. The vast beds of iron ore become insignificant compared with the ore beds of aluminum. As iron is now the most useful as well as the most abundant of all metals, it may not be unreasonable to anticipate a time when the extent and variety of uses to which aluminum will one day be applied shall be proportioned to the vastness of its ore beds.

"Aluminum is the lightest metal known, except glucinum and magnesium (excepting also sodium and potassium); its specific gravity is 2.56 for cast and 2.67 for hammered metal; about the weight of glass or porcelain. Its point of fusion is somewhere near 1,000 degrees F. It is malleable, laminable and ductile in a high degree; has a hardness equal to silver, and excels it in point of tenacity; is eight times better than iron as a conductor of electricity, being nearly equal to silver. Unlike silver, it wholly resists the action of sulphur, also of nitric acid, unless it is boiling. Sulphuric acid does not affect it, nor do the vegetable acids, as citric, oxalic and tartaric. Its record of resistance to change by acids and alkalis is a very fair one, and gives rise to the conjecture of possible impurity of the metal in explanation of the cases reported in which aluminum plates undergo change in the mouth. The conjecture is strengthened by the peculiarity of this change; it occurs in spots, seeming to indicate some local impurity or alloy, not by a general discoloration of the plate, such as we see on 18-carat gold, or silver, and on the stannic alloys. Hence, we know that a perfectly pure aluminum plate will certainly resist the secretions of the mouth; also that it is desirable to avoid placing in the mouth alloys of aluminum with zinc, tin, or cadmium; and that alloys with gold or platina will prove less valuable than the pure metal."

To attain a fair knowledge of the present advancement of the profession in casting aluminum, it will be necessary to first under-

stand the difficulties, and then the means which have been used to overcome them. The first difficulty is the lightness of the metal. When an attempt is made to cast a plate of aluminum in the ordinary way of casting other metals, it is found that the air contained in the molds has prevented the light metal from filling out, and holes are formed in the casting of various size and localities where the air has collected. The second difficulty is want of fluidity of the melted metal. It is observed that the castings are not sharp, and that thin and angular points are not filled out. The next difficulty is the extreme contraction, which tends to destroy the fit of the plate, besides the cracking of the teeth, especially when block teeth are used. There are other difficulties, but these will serve the present purpose.

Dr. Bean, who perished in an avalanche while ascending Mont Blanc, in 1870, patented an appliance in 1867. A full account of his scientific process is given in the older editions of Harris' Principles and Practice of Dentistry, but is omitted by the later editors. His device consisted of a flask with special vents and a long conduit. In his process he sought to overcome the lightness of the metal and want of fluidity by hydrostatic pressure and by filling the mold, previous to pouring, with certain gases lighter, and, as he supposed, less resistant than air. The contraction he overcame by casting upon a model of plaster and marble-dust made from his original model by means of a sectional impression in plaster, thus obtaining three expansions of the plaster. This had regard only to the fit of the plate. To prevent cracking, the teeth were removed before casting, and afterwards attached by flowing an alloy by an additional process.

After Dr. Bean's, several appliances and methods have been introduced, two of which embody the principal ideas worthy of consideration. The first is the application of force to compel the metal to fill the mold. It would seem that this is practical; but it is found to fail, since aluminum so readily absorbs gas and air, which mingle with the metal and render it cancellous. This porosity may not be at first observed, but it becomes apparent when the plate is worn. The second is the idea of exhausting the air from the molds previous to forcing the metal in. A complete apparatus is offered for this purpose, but is useless with pure metal, and succeeds little better with the alloys than with the one which uses force alone.

A satisfactory method of limiting contraction has been a puzzling problem to all who have undertaken to cast aluminum for the mouth. To better understand this, it is well to remember that the warping of a rubber plate produces an exactly opposite result from that of the contraction of an aluminum plate. The former leaves the ridge, and rides upon the palate; the latter leaves the palate, and fits more closely on the ridge; hence, fits the better of the two, if the contraction is not extreme or has been provided for. To overcome this, the idea has been advanced (1) of placing a thin strip of wax over the impression where the misfit will occur, thus changing the model at that point; (2) to add to the aluminum itself some metal, such as tin, which is known to reduce its contraction.

Use of the first forever precludes the possibility of a fit, and the second is of all things that which has done most to impede the progress of aluminum in dental art, namely, the unscientific use of metals to alloy aluminum instead of taking only the pure metal, or the proper use of other metals with it, if such be possible. The result with the alloys that have been used is, that when the metal is added to aluminum it does not unite with it to form a new compound, but mixes with it only in a mechanical way, and when placed in the mouth is thus destroyed by voltaic action. The positive pole is the one which suffers, and aluminum is positive to electricity. The added alloy, aided by the minute air-cells, moisture, and other electrical conditions of the mouth, favors the action of the countless minute batteries thus formed, which soon tell upon the integrity of the piece, thus accounting for its destruction in spots, and also affords a proof, besides much other testimony, that the action is not chemical, as has heretofore been believed. The chemistry alone of the mouth is entirely inadequate to produce the results observed upon alloys of aluminum, and has no effect whatever upon the metal when pure; that is, when free from iron and silicon, either the original or that which has been acquired by repeated meltings in iron or other unsuitable crucibles, as ample experience has demonstrated.

The destruction of swaged plates is similar, and is accounted for in the same way, since the ingots of which the plates are made are defective alloys before being rolled into plate, and the subsequent annealing and swaging by the ordinary methods serve only to increase the conditions favorable to the future failure of the piece.

The great wonder is that the metal's reputation is so fair to-day. Another difficulty with each of the appliances with which it is attempted to force the metal into the mold is that an air-tight mold is required except the vents. The difficulty of preparing these is no trivial matter, and adds greatly to the uncertainty and labor of each effort.

The needs of the profession are, then, (1) a pure metal, or an alloy free from high-priced monopoly, which will not be subject to voltaic or chemical action; (2) a practical means of casting which will produce a sharp copy of the metal without extreme shrinkage.

I will try to give some idea of the means with which I have been successful; but will not undertake to enter into minute details, either as to appliances or processes. Several years ago I conceived the idea that if the atmospheric resistance in the mold could be reduced to a minimum and a long conduit used, the metal would flow satisfactorily. I accordingly devised a "gas vent for molds," which consists of any reticulated diaphragm over the surface of the mold which permits the free escape of air and gas but retains the metal. I was very successful in the application of this idea, and by repeated experiments mastered the details and gained considerable skill, and at the same time made satisfactory progress in other lines of the work. But I soon realized that another trouble presented in casting large full upper plates, which was not constant, but appeared often enough to render uncertain the result. This was a defect about the center of upper plates, which I supposed was due to pouring the metal at an improper heat. Dr. Bean recommended that the metal be poured at a certain red heat, but the appearance of redness is deceptive, and depends not so much on the temperature of the heated body as upon the light in which it is viewed. I have adopted the simple plan of melting the metal considerably beyond the pouring heat, then removing it from the furnace till it begins to granulate, and reheat until granulations disappear. It is then at the exact temperature to flow sharpest with least degree of shrinkage and contraction. Another way is to heat beyond the proper degree and cool to granulation by adding other metal in small pieces till granulation occurs, then continue the heat till granulation disappears. I adopt this same rule in pouring the metal dies upon which I test the plates to insure a fit.

But the proper pouring heat alone was not sufficient to entirely

obviate the difficulty, so I decided the defect was a porosity resulting from and determined by the last cooling point of the plate, and concluded that I would so form the matrix that the entire plate should be outside this porous area. I have made various forms of flasks to facilitate the proper shaping of the matrix to utilize this principle. Some of these include a neck for taking advantage of hydrostatic pressure; others are shorter with a separable neck. To still further remove this last cooling point from the plate portion of the matrix, I heat the neck of the flask, while the plate portion is kept cooler. With this apparatus any one should be able to mold a plate without the least difficulty or apprehension of failure. Surely no device could be simpler or any process more free from complications. It reduces the matter to simplicity itself. First, make the model; second, form the mold and dry it; third, melt the metal and pour it in.

To give some idea of the small difficulties which a new art presents, I will mention one with which I struggled long and earnestly before I settled it satisfactorily. 1. A material for base plate. 2. The thickness of the base plate. 3. How to obtain it. I tried everything suggested and found that old modeling compound, which had been used till it was no good for impressions, was just right for base plate. It is economical, is easily removed, does not melt and saturate the model to spoil its surface and create a gas at the time of casting, is not likely to make a thin place in the plate, etc. I determined the proper thickness of the base plate to cast well by repeated experiments, and to produce it I used a gauge and roller.

When the plate is finished and ready to try in the mouth, the great anxiety is, Will it fit? If it does not, all else is nothing; no matter how perfect the cast may seem to be, if it should fail in this particular point aluminum is a failure. All previous efforts have failed at this point, and the casts which I make are no complete exception to this rule; but the change is not only of such a nature that I completely overcome it, but also in addition I make the defect one of the greatest attractions and commendations of the work. Not all cast plates fail to fit, but should they be found not to go up on the posterior border, and also seem too narrow at this point, it is due (1) to a shrinkage of the model in drying, and (2) contractions of the metal on cooling. I have already condemned the old idea of changing the shape of the model, and of alloying

the metal to prevent contraction. The plan which is without objection is to place the plate upon a zinc die, which is a perfect copy of the original model, and by proper application of force bring it in perfect contact with the die. I produce this die by an easy, accurate method, entirely free from all the uncertainty of molding sand and its disappointments.

By this means I produce a plate which is a perfect cast, and yet is freed from all the defects of casting, and has appropriated all the long famed excellencies of the old-time metal workers' products. It is better than any cast plate, for it has all the advantage of swaging. It is better than any swaged plate, for it has all the advantage of casting. Such a plate can be placed in the mouth with every confidence of perfect adaptation and consequent health and satisfaction. You will observe that I have said nothing about the attachment of teeth.

To attempt to cast upon the teeth, except for partial cases, is one of the errors of the older experimentors. They have done so only because it is customary to mold rubber upon the teeth. I will not here argue this question, but I believe the advantage gained by having the metal plate as a try plate upon which to set up the teeth, producing as it does the highest mechanical and esthetic attainments, more than compensates for the extra labor of vulcanizing on the attachments.

The apparatus consists of a furnace for melting the metal, flasks in which the matrix is formed, a gauge board and roller for making base plate, crucibles, tongs, etc. No special form of furnace is required. Any one will serve the purpose which will take No. 1 plumbago crucible and furnish a heat of 1,500 deg. F. An automatic furnace is, of course, preferable. The flask consists of lateral halves, which are bolted together. The space at the heel of the model is very much larger than is common, and the flask is provided with a neck, funnel-shaped, to admit the metal. The materials used in the construction of models, investments, etc., are easily procured and cheap. The best of aluminum, which is guaranteed free from iron and other injurious impurities, is obtained from the reducer at a very slight cost, the actual expense of a plate being less than that of rubber.

The impression and model is produced in the usual way. From this model, by an easy and accurate process, I reproduce as many

models, either of plaster, metal, or other material, as needed, and the original is preserved to test the fit of the finished plate. The base plate is fitted to the model, and the model invested. The wire gauze is added in such cases as require it, and provision is made for the escape of air through it. The second half of the flask and investment is added when the first has set; the base plate is removed, the investment dried, and the pouring gate formed.

The desirable properties of aluminum as a base for artificial teeth have not been utilized because of the imperfect way of working it. Swaged work has never been popular, and likely never will be. The "aluminum hope" has been placed in a process of casting. No process heretofore presented has been sufficiently free from imperfections to bring out its properties to advantage. By this process of casting not only are the natural properties utilized to the fullest extent, but the process itself has many natural advantages which add very materially to the value of the completed case. It is a well known fact that the edentulous mouth materially changes in almost every instance under rubber plates. This change does not occur when metal plates are worn. The disease known as rubber disease is a familiar form of injury, unknown under metal plates, and the only reason why rubber is tolerated at all is because of the ease with which it is produced and its cheapness. This has so degraded prosthetic dentistry that few skillful ethical operators care to do plate work. The cast aluminum plate therefore fills a long-felt want. It furnishes a plate cheap enough to be within the reach of all, and at the same time requires an amount of time and skill to produce it which justifies a larger fee, and produces a plate far superior in natural properties to anything yet presented. The plates are so rigid that it is nearly impossible to break or bend them.

The material is almost as light as rubber, as clean and healthy and untarnished as gold, and a fit is secured which obtains all the advantages of both the casting and swaging processes, without the defects of either. There is absolutely no question as to the fit of the plate, if impression and model are correct, and the process of articulating the teeth is so simplified that an ordinary operator can secure better results by the use of these plates than is possible for a skillful operator to obtain with rubber or other materials. Besides the perfect fit of the plate and the perfect occlusion of the teeth which is so readily obtained, there seems to be a compatibility with

its surroundings in the mouth which renders it especially comfortable and satisfactory to the wearer. The reason for this is plain. It is a conductor of heat and cold, of sound, and of electricity. The mouth is the center of a very delicately balanced system of nerves and special senses. It is the home of the sense of taste; through the teeth sound is intensified and hearing is possible to the deaf. The tongue has the sense of touch extravagantly developed. Immediately above the mouth, and intimately associated with it, are the special senses of smell and sight. Is it any wonder that a pleasing sense of relief follows the substitution of an aluminum plate, which conducts everything, for a rubber plate, which conducts nothing? By the use of nonconducting material the blood-supply is unbalanced, electric vital currents are interrupted, and the whole facial economy disturbed.

It is not, then, a matter of surprise that diseases are manifested, and that chronic ones, such as catarrh, inflammation of the throat, etc., remain uncured in the presence of a rubber plate. A nose, ear and throat specialist can not promise a cure if an irritating rubber plate is worn. Heretofore we have had little choice, but now, if we wish to conserve the interest of our patient, we can not admit rubber, until we have fully acquainted the wearer with a full statement of the consequences of a non-conductor and explained the advantages of cast aluminum.—*Indiana Journal, Oct. 1900.*

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DENTAL SUPPURATION TERMINATING FATALLY. By W. R. Read, L.D.S., Eng. Read before Odontological Society of Great Britain. The patient, a girl, aged 14, was admitted Feb. 21 to the hospital in an almost moribund condition, suffering from "fever and diarrhea."

Two weeks ago patient had an "abscess" in the roof of the mouth which subsided without bursting. Two or three days later she began to complain of pains in the head which spread afterwards to the back and knees. A week ago complained of pains in the abdomen and increasing weakness and diarrhea. Patient has been in bed ever since; has not slept well, has had some retching, and has not taken food well. She had "scarlet fever" four years ago.

Present Condition.—Patient lies in bed, occasionally calling out while asleep. Cheeks somewhat flushed; tongue slightly reddened at tip; lips dry, some sordes. Complains of pain at right side of

chest. Eyes: pupils equal, not dilated; react to light; no squint, movements good. No discharge from nose or ears. Temperature 102·6°; pulse, 120, regular fair volume and tension; respiration 60. Chest: there is little impairment at left apex in front; both bases behind somewhat impaired; nothing abnormal heard in front; at both bases behind there are some crepitations. Heart: apex beat in fourth space, one inch inside N.L.; a soft systolic murmur can be heard over the whole cardiac region; not transmitted to the axilla. Abdomen somewhat full, no spots, and no tenderness; spleen not felt. Some swelling in both knees, which are hotter than the surrounding parts; some fullness in the dorsum of each foot, but no pitting.

February 23. Temperature rose to 105·4° last night, falling to 103·2° after sponging and 5 grains of antipyrin. Patient has been very delirious. Bowels open once yesterday; motion loose and yellow. There is some slight twitching of the fingers, but no retraction of the head. A slight rash has appeared about the wrists. A blood culture gives no growth at present, and Widal's test no clumping.

February 24. Patient slept somewhat better last night. There is some increase of impairment in right axilla, where breath sounds are diminished. Nothing further found. Blood count about 4,000,000 reds, 6,000 whites. Urine shows trace of albumen. Chlorids diminished. Blood culture shows streptococci.

February 27. Patient had 10 cc. of antistreptococcic serum injected yesterday, but there was not the slightest effect produced on the temperature. Yesterday a large bulla appeared on the outer side of the right foot, and there is also a bulla on right big toe. To-day about 6:30 a. m., patient became more unconscious, and retraction of the head came on. Does not take food. Right pupil is slightly larger than left. Patient has slept badly, shooting about bed incessantly. No retraction of abdomen and no rigidity of limbs. Nothing further in heart or lungs. Patient died on afternoon of the 27th.

Post-mortem Note. External Appearances: Very pale, few small subcutaneous hemorrhages. Head: two small hemorrhages in frontal region of pia arachnoidea; brain: 46 ounces, natural except that throughout were minute hemorrhagic points. Spinal cord and eye not examined. Ear natural. Larynx and trachea natural

except a small ulcer on left vocal cord. Lungs: right 16 ounces, recent patches of pleurisy corresponding to position of infarcts. Left lung everywhere adherent by old membranous adhesions; on section lungs edematous and several recent infarcts. Heart: small superficial ulcer just below one of the aortic cusps; a few small subpericardial hemorrhages; no vegetations. Peritoneum: some subperitoneal hemorrhages (embolic). Intestines and stomach natural; no ulcers. Liver cloudy. Spleen: 10 ounces, two recent infarcts (red). Kidneys, 6 ounces each, recent infarcts. Bladder: many subcutaneous points of hemorrhages. Right maxilla: On examining the mouth the right first maxillary molar was found to be carious, the three roots alone remaining and they were separated. One-third of an inch above the alveolar margin was found a small oval opening, the edges of which were black. On passing a probe some thick and offensive pus escaped, and the probe went into the antrum. The right maxilla was removed and the antrum found to be full of the same thick pus. A small abscess was found above the opening in the gum, not communicating with it but opening into the antrum.—*Brit. Jour. D. S., Oct. 1900.*

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MINOR ANESTHETICS IN MINOR SURGERY. By W. J. King, M.D., Denver. If general anesthesia is employed in some small operation, do not think that because it is a minor operation it is safe to operate before the reflexes are abolished. Wait until the patient is fully under the anesthetic. There is more danger in incomplete anesthesia than there is in complete anesthesia. However, there is a stage—called "primary anesthesia"—that occurs early in the administration of chloroform or ether. The patient, while not losing consciousness, does not feel pain. This stage of primary anesthesia lasts but about thirty seconds, during which an abscess may be opened, a dislocation reduced, sutures or drainage materials removed or some other simple operation performed. Neither nausea nor vomiting results, and the patient is in his normal condition in ten or fifteen minutes. Primary anesthesia is induced in the following manner, after everything is in readiness for the operation: Patient being in a recumbent posture, with one arm raised vertically, is told to count out loud as the ether or chloroform is administered. In one to three minutes the arm will drop to the side; this is your signal that the patient is ready, so have the anes-

thetic stopped and proceed to operate. The element of fright is removed during primary anesthesia, so you can depend on the patient keeping quiet. Local anesthetics do control the pain, but do not remove the dread of the operation. Under local anesthesia the patient may move just at a time when you especially desire him to keep quiet.

A slight degree of anesthesia may be produced by taking several long, deep inspirations repeated rapidly. This acts by causing an accumulation of blood in the veins, overcharging the vessels of the brain with imperfectly oxygenated blood, thereby stupefying the sensibilities. It is recommended for opening abscesses, reducing paraphymosis, etc. In hernia strangulated by a mere excess of blood in the tumor, it constricts the tissues, expels the blood, and permits reduction of the hernia. One objection to it is the danger of apoplexy from the engorged blood-vessels of the brain.

Local anesthesia may be used for many purposes. In cases where the patient's condition is such that a general anesthetic is contraindicated, local anesthesia has a distinct field in the performance of major operations. But it is more commonly used in the probing of wounds, incising carbuncles, cysts, abscesses or felons, curetting ulcers, small tumors, warts or wens, litigating or excising hemorrhoids, applying or removing drainage tubes or sutures, extracting teeth, reducing dislocations or fractures, operations for necrosis, deflected septum, hypertrophied turbinates, hair-lip. It may be used for many other minor operations. Local anesthetics will alleviate painful piles, neuralgia, periostitis, etc.

Freezing a part will temporarily benumb it. A spray of a very volatile liquid, such as chlorid of ethyl, rapidly evaporates and consequently causes intense cold. Cold acts by causing a temporary constriction of the lumen of the capillaries and a consequent temporary death and insensibility of the part; or rather, by this process, life in the part is for a short time suspended; its safety is due to the extreme rapidity of the deadening process. The general circulation is not affected, and as the agent is applied for but a very brief period of time, the blood returns to the part and complete restoration takes place.

I am inclined to believe that a hypodermic syringe carrying an extremely fine needle might be used to direct an ether spray upon a part.

Powdered ice two parts and common salt one part enclosed in cheese-cloth, or some net of similar thin material, laid directly on the skin for five or six minutes will produce total insensibility. This valuable agent has the advantage of usually being easily secured anywhere.

Alcohol cooled to about 10° below freezing point, carbon bisulphid, orthoform, and chlorid of ethyl have been recommended as local anesthetics; likewise menthol and lanolin, equal parts, rubbed on the part, or menthol 10 to 20 per cent in olive oil hypodermically. Ice-water injected by means of a hypodermic will produce results nearly as good as those obtained by using Schleich's infiltration anesthesia. Local anesthesia of the skin may be obtained by drawing a camels-hair pencil wet with carbolic acid, 95 per cent, over the line of incision.

Electricity, the faradic current, was used years ago, but is no longer employed as an anesthetic agent. The positive galvanic current, however, may be used to carry into the deeper tissues an opiate or anesthetic applied on the surface. This is called electrical cataphoresis.

The objections to the use of any freezing agent are that congelation of the tissues is irregular, either too great or insufficient; it is hard to cut frozen flesh; to discover and secure the blood-vessels; to distinguish abnormal from healthy tissues when frozen; and sloughing may occur if the freezing is long continued.—*The Critique.*

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ALVEOLAR ABSCESS. By G. A. Kennedy, D.D.S., Kent, Ohio. Early last spring a man of 35 years presented with an alveolar abscess. The roots of an inferior right first molar were the cause of the irritation. It being night, and the roots not perceptible, instructions were given for him to return on the next day in order to have the offending members removed. However, he failed to appear until some weeks later, when he presented with a much larger face than on the previous occasion. Having nothing but artificial light, and the roots still being invisible, the gum was lanced, in hopes that pus might be reached, but all to no purpose. Then a probe was used, and again no pus. The patient was instructed to place a split raisin over the part where the abscess was most likely to point, and the fact emphasized for the patient to return the next day. This he did, when the roots were removed, but not a drop of

pus came with them. Pain had ceased and the patient was given a quantity of listerine, and told that the climax of the trouble was reached, and that the abscess would no doubt point either through the socket where the roots were extracted, or else where the gum had been lanced. But such was not the case. On the following day the man returned with his face still paining him, and, of course, more swelling, involving the submaxillary gland. Upon being informed that pus must be reached, he said he could not endure the probing again and returned home to use the raisin once more. After a few hours the family physician was summoned, who advised a poultice of hot flaxseed to be placed over the swelling. This was diligently pursued for several hours, when the physician desired me to call with him to see the case, the patient by this time not being able to come to the office. The swelling had extended well down on the neck, and it was with difficulty that the man could open his mouth. There was no sign of the pus pointing, and the hot poultices were continued. The swelling, however, increased, extending down to the clavicle and up to the temple, while the tissues presented that boardlike induration so often seen in such cases.

The pharynx and tonsils were badly swollen and deglutition was performed with difficulty. It was now thought best to make an incision upon the face, where pus seemed nearest the surface. Again it was a failure, so on the next day the patient was taken to Cleveland to be operated upon. His temperature by this time was 102°, and it was deemed best to proceed with the operation at once. Chloroform was administered. An incision was made in the face parallel with the body of the inferior maxillary. Then by Hilton's method of opening an abscess, the long-looked-for pus was found, underneath the deep fascia. It was of a thick, creamy consistency, with much odor. After removing as much of the pus as possible, and cleansing with bichlorid, iodoform gauze was packed in the opening and the patient dismissed. The wound was then dressed every other day with peroxid of hydrogen and a two per cent solution of formaldehyd until the patient showed signs of recovery, when the dressing was less frequent. It was fully a month, however, before patient was able to return to work.

Now to what point are we, as dentists, expected to treat such cases? Was not the one just reported in its last stages outside the sphere of dentistry, unless one is making a specialty of oral surgery? At first

there was merely an alveolar abscess, but at the last there was a typical case of Ludwig's angina, the prognosis of which is often grave. Out of 58 cases tabulated in literature there is a mortality of 57 per cent. In some cases pus was reached, while in others none was to be found. At times there will be intense pressure and swelling of the side of face and neck, resulting from the roots of teeth, but without a drop of pus being present. This is how we are to tell whether or not a deep cervical abscess is forming: If pus is accumulating there will usually be a rising temperature, though not always. You will find, by carefully passing the top of your finger over the swollen part, a soft area. This area will present a dusky, reddish appearance; at other times there will be intense swelling from the chin down to the clavicle, showing that boardlike "infiltration" so often seen. The treatment of these cases is as follows: A tonic and cathartic should be administered. In the early stages of the swelling poultices or hot fomentations ought to be applied until the swelling subsides or there is a strong evidence of pus. When one is convinced that pus is forming the case should immediately be turned over to a surgeon. The dentist ought no longer to retain the case when developments have reached this stage. It has gone beyond an alveolar abscess with extended inflammation, and has grown into a deep cervical abscess which is by far more serious. At this juncture no time should be lost in evacuating the pus. Even now there is danger of gangrene and edema of the larynx, which may necessitate the performance of tracheotomy. In severe cases retropharnyngeal abscesses have been known to form, and then the pus may point into the pharynx or trachea in such quantity as to cause asphyxia. A number of serious complications may result from these deep-seated abscesses, and it is our duty as dentists to remove every old root that is useless, even though at the time it may be causing no trouble; and in case we have an alveolar abscess, to remove that pus if possible.—*Ohio Journal, Sept. 1900.*

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IS INEBRIETY EVER A DISEASE OR ALWAYS A VICE? By P. C. Remondino, M.D., San Diego, Cal. Dr. T. D. Crothers, of Hartford, mentions that some years ago a clergyman having charge of a largely attended mission chapel, one of those broad-minded men who recognize the retroactive relations that exist between the physical and psychic conditions of man, as a result of

his investigation and observation used all possible moral compulsion to induce his charges to have their teeth repaired and afterwards kept in order. He found that after the adoption of the plan he had less drunkenness among his charges. Dr. Rush previously noted the distant affections that were remedied by attention to the teeth, and when we consider the disturbing influence arising from loss of rest, and from the continued nervous irritation to which we are liable to unconsciously suffer from the presence of decayed teeth, we can easily understand how these could be the cause of the initial point from which one may embark on a career ending either in a spell of drunkenness, or in a path that may end in confirmed and habitual dipsomania. The possible extent, reach and degree of reflex disturbance which the irritation of a decayed tooth may cause is something astonishing, and the views held by Rush a century ago have often been confirmed by subsequent observers.

Epilepsy and dipsomania are closely related, as is well known, and what will induce the former of these pathologic conditions can the more readily bring about the latter. The *Medical News* mentions that the literature of the subject contains the history of some fifteen cases in which epilepsy was cured by the extraction of one or more diseased teeth. One case is given where the connection between the irritating and determining cause and the beginning of the epileptic attacks and their disappearance by the removal of the cause, are all so plain that a relation of the case is instructive: "The patient, a man, aged 27, suffered severe pain in the right upper middle incisor, which was filled soon after. Thereupon arose a swelling on the adjacent portion of the hard palate, in which soon after a fistulous opening appeared. Every morning the patient expelled, by pressure with his finger, the purulent contents of the swelling, and was thereafter comparatively free from pain. The tooth, however, was loose and somewhat painful when in use. Ten days after it was filled an epileptic attack occurred, which was repeated after several months. Gradually the attacks became more frequent, and in eighteen months after the first attack they occurred several times a week. The fistula remained during this entire period, and the patient used under medical advice bromids, atropia and other remedies without results. The tooth was then extracted, whereupon the fistula healed, and the epileptic attacks have not returned, although the extraction occurred four years ago."

Some time since I attended a young bachelor who had for some years, but with long intermissions, been subject to attacks of what was looked upon as periodic inebriety. In former attacks the spells had given way to treatment, but in one of these spells I found it absolutely impossible to prevent a relapse of the debauch. I could not account for the new condition of affairs, until one day he begged me to allow him some liquor, as he found it utterly impossible to obtain rest. He then informed me that brandy was the only drug from which he had been able to obtain any relief from the pain and additional nervous irritation caused by a carious tooth which had prevented sleep on the previous night; it had been filled twice, and he had been under a dentist's care just prior to the inauguration of this last drunk. Here I felt was the key to the whole situation. On examining the offending tooth I concluded that just so long as any attempts were made to cure or save the tooth—which so far had all been ineffectual—just so long would the relapses of dipsomania continue. I at once urged immediate extraction, to which the patient consented when I explained to him my reasons, and that I considered the existence of this carious tooth and the irritability it occasioned as being the main factor of his present dipsomaniacal outbreak. On retrospective consideration the patient, a gentleman of unusual intelligence, and well versed in all the literature on alcoholism and dipsomania, fully agreed with me that it was safer to sacrifice the tooth and all prospects for its recovery than to risk the probabilities of an unending debauch. The tooth, a large upper molar, was extracted, when it was found on examination to have been past repair, the roots being extensively ulcerated and in a state of decay. Immediately after removal of this exciting cause, all desire for liquor ceased at once and the patient made a rapid recovery.—*Pacific Med. Jour., Oct. 1900.*

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CONE FOR ROOT-CANAL FILLING. By Theo. Frhr. von Beust, M.D., D.D.S., Dresden, Germany. My method distinguishes itself from all other fillings that have come to my notice, in that the canal is more easily and completely filled, and in that it is removable, a property which in itself must make it invaluable to every dentist. I have had opportunities of testing this filling in every respect, and will say that it can be easily and completely removed the moment the contents of the pulp-chamber are exposed to the

reach of an excavator or pair of light pliers. It therefore also asserts itself as a practical test filling, and can be used in the antiseptic treatment of roots.

My method is this: I take fine silver wire of from 0.05 to 0.02 millimeter in diameter, and cut from the different thicknesses of wire lengths to correspond to the different sizes of root-canals. These I roughen and surround with a film of gutta-percha, making the point cylindrical or cone-shaped, very like the root-canal points bought at the depots. Then I turn a crook or hook at the end of the point which is to occupy the coronal portion of the pulp cavity. Thus we have an ordinary root-canal point of gutta-percha with a core of wire and a hook at the larger end, or the sheath may be of cotton or wax. This hook facilitates removal of the filling, it being readily seen that the moment one can reach it with the pliers, the filling can be drawn bodily from the canal. Removability has been the *bete noir* of most of our practitioners, and this little idea may prove of value. It has, moreover, other advantages, in that the filling, which can be made as fine as any practical gutta-percha point, has such strength that it will follow the root-canal to the very end without turning at the point, as is the case with those of gutta-percha.

My method of filling is to introduce chloro-percha into the root, and then insert the point with a pumping motion, so as to better force out all air that may be confined. The completed filling, it will thus be seen, has exactly the mechanical and therapeutic value of an ordinary gutta-percha filling with the additional advantages above named.—*Items, Oct. 1900.*

ABBREVIATIONS.—There is a singular tendency in English "medicalese" to resort to abbreviations and initials of various sorts, most of which are comparatively unknown among us, in spite of our alleged tendency to clip and shorten everything. For instance, a general practitioner is always referred to as a "G.P.;" a house physician or house surgeon as an "H.P." or "H.S.;" a case record of tabes dorsalis is headed with the mystic letters "T.D.;" one of general paralysis of the insane, with "G.P.I.," and the same contractions are habitually used in conversation. A unique combination of initials as a diagnosis endorsement is reported to be in vogue at University College Hospital. Whenever a case which is clearly serious enough for admission proves too complicated or difficult to warrant a precise diagnosis upon the hurried examination of the receiving-room, it is promptly initialed "G.O.K." and sent up to its appropriate ward for adequate investigation at leisure. The mystic characters signify simply "God only knows."—*Medical News.*

The Dental Digest.

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Editorial.

COLLUSION AND FRAUD PROVEN AGAINST THE CROWN COMPANY BY THE PROTECTIVE ASSOCIATION.

In discussing the litigation last month we stated that Judge Lacombe, upon our motion and petition, had directed the president of the International Tooth Crown Co., Dr. L. T. Sheffield, and his brother-in-law, James Orr Kyle, the so-called defendant in the recent case of the Crown Co. against Kyle, when the Low bridge patent was again sustained, to attend and submit to an examination before a Master in Chancery as to the allegation of the collusive and fraudulent character of that suit.

From the time, July 31, 1899, when Judge Townsend of the United States Circuit Court gave the decision in favor of the Crown Co., which practically overruled or reversed the former one in favor of the Protective Association which had declared the patent invalid, we have asserted that the recent suit was won through collusion and fraud. Our suspicions were founded on good grounds, for we knew that the Crown Co. had bedeviled the testimony and witnesses which the Protective Association put forward in the previous suit, and we also knew that the defendant, Kyle, had not stood all if any of the expense of his defense. Furthermore, there were many other questionable features, which we shall discuss later.

The examination of Sheffield and Kyle was begun on November 8 and ended on the 14th, the editor attending each day's session. The matter is not yet settled, but enough has been brought out to show that this case, in which the Crown Co. obtained a favorable decision, is one of the most fraudulent, dirty and disgraceful proceedings that has ever come before a Federal or a State Court in this country. The examination of Sheffield showed that the entire expense of both sides of the litigation—the Crown Co. and Shef-

field and the alleged defendant, his brother-in-law, James Orr Kyle —was paid for directly and indirectly by the Crown Co. and Sheffield. After trying to evade the question for nearly one whole day Kyle, the defendant—if such he can be called—admitted that he never even went to his alleged lawyer's office, and that the only contribution he made to his defense, directly or indirectly, was "car-fare and drinks for his attorney." There were also many startling and sickening disclosures, but it is not best to make them public at this time. Next month, however, we promise our readers some facts that will be still more astonishing.

NEWSPAPER ETHICS.

Several months ago the Chicago *Tribune* made adverse comment upon the action of the Nebraska State Board of Health, which refused to issue a license to a physician of Chicago because he advertised, and the board claimed this to be "unprofessional and dishonest." The applicant was an eye-doctor who claimed to cure cataract "by mild medicines alone," and his advertisements in the daily papers were filled with "symptoms of cataract and how to detect them"—on the same order as the patent medicine and "Sexual Weakness" ads—intended to mislead the unsophisticated. The *Tribune* expressed its "surprise at the unjust nature of this proceeding" by the state board. As the quack in question used considerable space in the Chicago newspapers, and is running at the present time a two-column advertisement in the Sunday *Tribune*, that paper's solicitude on his account may not be wholly disinterested.

When the Indiana State Dental Association was in session at Terre Haute last year a local paper printed pictures and sketches of some of the members, whereupon a delegate took exception to the procedure in vigorous language, saying that it was "advertising in violation of the code." In commenting upon the matter an Indiana newspaper says, "Not knowing the delegate we suspect he does not do much business because he is crank enough to refuse to advertise in a newspaper, or else he is sore because his picture did not appear with the others. It is noticeable that the most prosperous dentists are those who patronize printer's ink." Comment on this effusion is unnecessary, but we would brand as entirely false the statement that the most prosperous

dentists are those who advertise. While members of our profession do not as a rule die rich, a goodly number have made moderate fortunes from the practice of dentistry, but they have not done it by "patronizing printer's ink." Instead of advertising dentists being the most prosperous, they are regarded by the dental supply houses, who certainly are in a position to judge of the matter, as somewhat risky for credit, with few exceptions.

Regarding the attitude of the newspapers on this subject, one of the leading medical journals of this country says, "One of the notorious advertising irregular "doctors" of Columbus, Ohio, was arrested on a charge of practicing medicine without a license. The state board was successful in obtaining a conviction, and a fine of two hundred dollars was imposed. The newspapers of Columbus, having been paid large sums by the charlatan for advertising, refused point blank to publish the fact of the trial and conviction. The item was not sent out by the Associated Press. This is a fine commentary indeed upon the morality of the daily papers. Nothing could better demonstrate the power of money to buy the newspapers, or the hold which the quacks have upon the publishers and editors of lay journals."

Many reasonably well-informed people imagine that the ethical code which forbids dentists and physicians to advertise rests upon no substantial basis of common sense. They are disposed to regard it as mere affectation and pedantry. As a matter of fact there are very material reasons for the strict enforcement of the code, and none of them more important than to protect the public against the danger of its own gullibility. Most advertising is notoriously untruthful. The proprietors of the great retail emporiums vie with the patent medicine venders in making the most extravagant claims. There is an axiom of the law with regard to ordinary merchandising, "Let the purchaser beware," that should never be applied to the learned professions. The layman is presumed to be able to judge of the quality of meats, groceries, clothes and such ordinary articles as he needs, but he has no means of determining in advance the ability of a dentist to treat diseased conditions of the mouth. The professional man who advertises appeals to the ignorance of the people. In the very nature of things he must make preposterous claims. It is impossible to tell a number of miscellaneous readers of an advertise-

ment what they need in dentistry or medicine. No two cases are alike, yet an advertiser unblushingly lumps humanity into a single class and offers to cure patients ad libitum as fast as they come, without regard to age, sex, color or previous condition of servitude.

With its dental and medical laws the state endeavors to protect the public from charlantry by providing that no one shall practice either art except he shows ability therefor, and this should insure the people against quackery and imposition. These restrictive laws are not intended to benefit the profession or to prevent competition therein, but are enforced for the common good. Unfortunately there is, however, no law against advertising in this country, so quackery is rampant and the public are swindled. P. T. Barnum, the great showman, was right when he said "The American people like to be humbugged." We regard Mexico as two or three centuries behind the times, but this government might well pattern after her laws on advertising. It is reported that in our sister republic an advertiser must, under pain of fine and imprisonment, fulfill absolutely every claim which he makes, and it is at once apparent how great a safeguard this provision is against quackery. The man who writes false and misleading advertisements, and who makes therein claims that are impossible of fulfillment, should properly be indicted for "obtaining money under false pretenses." It will, however, probably be some time before the state or national government will adopt such radical measures for the suppression of quackery and the benefit of the inhabitants of "these great and glorious," so the evil must be remedied by the reputable members of the dental and medical professions.

One newspaper in the west recently had the courage to announce that thereafter it would print no more disreputable, questionable or quack advertisements, and we predict for that paper the support of the decent people in the city in which it is published. If the members of the dental and medical professions would educate the intelligent element of the community against this quackery which finds vent in the daily press, the newspapers would soon feel the weight of disapproval against accepting such advertisements; one paper in each section would make the break and throw out and refuse all quack advertisements, and its rivals

would find it to their advantage to follow suit. If the newspapers will not serve the best interests of their readers from choice they must be forced to do so through necessity.

Notices.

NEW HAMPSHIRE STATE DENTAL SOCIETY.

At the annual meeting of this organization, held at Manchester Nov. 13-15, 1900, the following officers were elected for the ensuing year: Pres., W. W. Cushman; V. P., W. I. Moulton; Sec., F. F. Fisher; Treas., G. A. Young; Librarian, E. T. Bibber; Ex. Com., Joseph Boylston, O. H. Johnson, E. C. Blaisdell.

LATEST DENTAL PATENTS.

660,172. Dental cuspidor, H. J. Tarr, Chicago.
660,411. Dental plugger, R. Blum, Corpus Christi, Texas.
660,943. Dental remedies, H. Bauermeister, Brunswick, Germany.
661,282. Dental polishing and finishing tool, C. C. Bachman, Waterloo, N.Y.
662,070. Dental handpiece, H. F. Jones, Camden, N. J.
662,231. Dental vulcanizer, P. Funck, Rochester, N. Y., assignor to Johnson & Lund, Philadelphia.

TRADE MARK.

35,329. Dental supplies, E. Ennis.

DENTAL PROTECTIVE ASSOCIATION MEETING.

The thirteenth annual meeting of the Dental Protective Association of the United States will be held at Chicago Kindergarten College Hall, 10 Van Buren street, Chicago, Monday, December 17, 1900, at 8 p. m. At this time three directors will be elected, the books and accounts examined and reported upon by a committee to be appointed by the members present, and such other miscellaneous business transacted as may come before the meeting. As full a representation as possible is desired, but if any of those unable to attend have suggestions to make, we shall be glad to receive same and to bring them before the meeting. J. N. CROUSE, President.
C. N. JOHNSON, Secretary.

INSTITUTE OF DENTAL PEDAGOGICS.

The eighth annual meeting of this organization will be held at the Maxwell House, Nashville, Tenn., commencing at 10 a. m., Dec. 27, 1900, and continuing three days. The local committee of arrangements is Henry W. Morgan and J. P. Gray.

Program: Thursday, Dec. 27, 10 a. m. President's address. Discussion, W. F. Litch, J. Taft, H. B. Tileston, F. D. Weisse, W. C Barrett. 12, noon. The Use of Flexible Rubber in Orthodontia and Other Technic Teaching, J. Q. Byram. Discussion, S. H. Guilford, C. S. Case, W. H. Fundenberg. W. W. Evans, W. E. Grant. 2 p. m., Teaching of Materia Medica and

Therapeutics, How and How Much? A. H. Peck. Discussion, James Truman, John I. Hart, S. W. Foster, G. E. Hunt, J. D. Patterson. 5 p. m. Exhibit open. 8:15 p. m., The Use of the Lantern in Teaching Dental Histology in Its Relation to Operative Dentistry, F. B. Noyes. Discussion, I. N. Broomell, A. H. Thompson, W. C. Foster, H. T. Smith, Louis Leroy.

Friday, Dec. 28, 9 a. m., exhibit open. 10 a. m., Presentation of the Technic of Crown and Bridge work, Metal and Porcelain, Thos. E. Weeks, Discussion, Otto Arnold, F. R. Sandusky, R. H. Nones, N. S. Hoff, H. R. Jewett. 1 p. m., Exhibit open. 2 p. m., Class-room Method of Teaching Oral Surgery, G. V. I. Brown. Discussion, M. H. Cryer, T. L. Gilmer, E. S. Talbot, J. Y. Crawford, E. M. Kettig. 4 p. m., A New Feature in Teaching Dental Anatomy and Operative Technics, A. E. Webster. Discussion, E. C. Kirk, G. V. Black, Wm. A. Montell, G. W. Dittmar, W. H. Whitslar.

Saturday, Dec. 29, 9 a. m. Exhibit open. 10 a. m. Class-room Method of Teaching Prosthetic Technic, Grant Molyneaux. Discussion, J. H. Kennerly, J. P. Gray, J. B. Littig, T. M. Allen, A. O. Hunt. 11:30 a. m. Reports of committees on syllabi of operative and prosthetic technics. 12 noon. Election of officers.

The exhibit should be shipped to the Maxwell House, care J. A. Dale or Geo. H. Wilson, Master of Exhibits, before the holiday rush. All teachers are cordially urged to attend these meetings. Every school should be represented.

HENRY W. MORGAN,
DAVID M. CATTELL,
WALTER E. WILMOTT,
} Executive Board.

CHICAGO ODONTOGRAPHIC SOCIETY.

The regular monthly meeting of this society was held Monday evening, Nov. 19, 1900, at its present temporary quarters in the Masonic Temple. President T. L. Gilmer was in the chair, and the attendance numbered considerably over one hundred, which is not an unusual thing, however, for Chicago's healthy young progeny of the dental profession.

The first paper of the evening was "Some Troubles of the Soft Tissues of the Mouth," by that prolific writer, A. H. Peck, and was a very lucid presentation of the subject so far as it went. The author attempted to touch only upon some of the most common and more frequently met with diseases that might be ascribed to the subject, and to consider them from a diagnostic, pathologic and therapeutic standpoint.

Special reference was made to the similarity of the differentiation between some of the diagnostic symptoms in certain oral manifestations, and particular stress was laid, both by the essayist and in the discussion following, upon the importance of the dentist securing as accurate a history of the case as possible, with as much right and as little incidental embarrassment as would the physician, before making any definite diagnosis or proceeding with the treatment; as well as the importance of constitutional treatment so frequently demanded.

The discussion was opened by G. W. Cook and continued by A. W. Harlan,

G. J. Dennis, C. T. Gramm, J. E. Nyman and others, and was productive of much interesting matter. Dr. Cook, talking from a bacteriological standpoint, added much in the way of substance to the subject; and Drs. Harlan and Gramm, treating it from a practical and mainly therapeutic point of view, seemingly covered all the ground left open by the essayist. Dr. Dennis gave an interesting description and history of several cases incident to office practice, when the author briefly closed the subject.

Dr. J. H. Prothero then read a paper on "Constructing a Matrix for Seamless Crowns." The wide scope of distinction between the nature, merit and value of this paper, as compared with the preceding one, caused the essayist to modestly apologize for descending from the sublime to the ridiculous; nevertheless, the paper was brief, practical, and presented a few good ideas, and we are pleased to note was prefaced by denying overenthusiasm upon the subject.

Your writer opened the discussion and was followed by W. H. Taggart, J. E. Nyman, H. C. Waack and others. The concensus of opinion indicated by the discussion, which was confined more to the practicability, merit and advantage of seamless crowns than to the operative procedure described in the essay, was so overwhelmingly in opposition to such a crown, that the author in closing acknowledged he felt almost like championing the same through a spirit of charity. There is a certain intuitive sentiment in the nature of most of us which, regardless of our own convictions, causes us invariably to lean toward the under dog, and the essayist was no exception to the rule.

From the scarcity of advocates of seamless crowns present, of acknowledged advantages in their favor, and in view of the objections mentioned by those who gave voice to their opinions, almost without challenge, we believe the idea is one of those fads scheduled to soon be placed upon the shelf; and that its strongest supporters and advocates will be the dental laboratory men, those who make seamless crowns but never see them in the mouth, or in relation with anything but a plaster model—the very ones who are least capable of judging.

Dr. Waack advocated such a crown for bicuspids where you cut the front out afterward and solder in a porcelain facing (Hollingsworth's method), because we suppose there would be no joint to come unsoldered. This, however, is no advantage when we have solders ranging from 22 to 18k. for this work, which precludes such a possibility, and Dr. Waack would be more in line with progressive prosthesis if he took an easier, quicker and far more artistic method and made porcelain crowns for such teeth.

The essayist then advocated such a crown for abutments for porcelain bridges, but we differ with him, as they are contraindicated here above every place else, for surely it would not be advisable to place the thinnest weakest crown right where you would require the greatest strength, especially in these days of platinum solder.

Mr. E. Lenthall Oldfield, of Melbourne, Australia, dean of the Dental College and Oral Hospital of Victoria, was elected to active membership, after which the meeting adjourned.

H. J. GOSLEE.

News Summary.

TEETH ARE LIKE VERBS, regular, irregular and defective.

SAVE UP MONEY for a rainy day, and it is sure to rain.—*Roche.*

A PAINLESS DENTIST is one who extracts teeth without pain—to himself.

WM. S. BITTNER, 67 years of age, a dentist at Altoona, Pa., died Nov. 6, 1900.

H. E. HOBBY, 22 years old, a dentist at Mt. Vernon, N. Y., died Oct. 20, 1900.

C. M. SHREVE, 48 years of age, a dentist at Denver, Col., died Nov. 14, 1900.

J. G. WELTMER, 55 years old, a dentist at Lititz, Pa., died Nov. 10, 1900.

J. W. HARRISON, a dentist at Terre Haute, Ind., 56 years old, committed suicide Oct. 22, 1900. He was a slave to alcohol, morphin and cocain.

CHAS. H. CLARK, 60 years of age, a dentist at Plainfield, N. J., died Nov. 4, 1900.

T. S. BELDEN, a dentist at Buffalo, N. Y., died Nov. 16, 1900, after several weeks' illness.

WM. A. LEE, a well-known dentist at Allegheny, Pa., died Nov. 10, 1900, at the age of 43.

W. KENNEY, formerly a dentist at Joliet, Ill., died in Canada, Oct 21, 1900, at the age of 29.

ARTHUR PEARSON, 37 years old, a dentist at Derby, Conn., died Nov. 15, 1900, of meningitis.

E. SHELP, 68 years of age, and for eighteen years in the practice of dentistry at St. Louis, died Oct. 22, 1900.

MARINE NOTE.—Can the act of a thirsty dentist imbibing a stein of beer be referred to as a "schooner going into a dry dock?"

A DRAW.—Perhaps one reason why dentists never have a match in their art is that the result would in all probability be a draw.

VULCANIZERS CONTINUE TO EXPLODE.—This time it was in the office of Dr. E. F. Rowell at Kenosha, Wis. The doctor had a narrow escape from serious injury.

TOLEDO DENTAL SOCIETY held its annual meeting Oct. 19, 1900, and elected the following officers: Pres., L. T. Canfield; V. P., W. S. Groves; Sec. and Treas., A. J. Wolfert.

VIRTUE ITS OWN REWARD.—"The dentist, Dr. ——, is being kept very busy. He is doing work for people from adjoining counties. This speaks well for his work."—*Nevada (Ia.) Journal.*

L. GLEASON, an insane dentist at Ithaca, N.Y., tried to kill his wife Nov. 12, by blowing up her house with dynamite. She was unhurt, but he was scattered over the adjacent townships.

THE office of H. J. Reilly at Missoula, Mont., was destroyed by fire Oct. 22, 1900, during the doctor's absence, and it is thought that as he was using gasoline to vulcanize an explosion occurred.

A. A. BIGELOW, a traveling dentist who generally resided at Cleveland, O., died at Newark, Nov. 14, 1900, from paralysis.

LUCKY MAN.—"Mrs. C. R. Adams, May Neely and May Adams were patronizing the dentist in Dana the last of the week."—Paris (Ill.) *Herald.*

J. W. TRAINOR, a dentist at Bedford, Ind., was assaulted and perhaps dangerously injured Oct. 29, 1900, by a citizen of the town, who charged the dentist with alienating his wife's affections.

TUSCARAWAS VALLEY DENTAL ASSOCIATION at its semi-annual meeting Oct. 31, 1900, elected the following officers: Pres., Hamlin Barnes; V. P., H. D. Mitchell; Sec. and Treas., R. O. Shoop.

SURGICAL INSTRUMENTS if carefully cleaned after using and then boiled in a saturated solution of carbonate of sodium and allowed to dry with the soda solution upon them, will never rust.—*Pacific Medical Journal.*

HASTE MAKES WASTE.—A dentist at Kankakee, Ill., advertises in the town paper that he recently extracted twenty-three teeth from a patient in one minute under gas. He evidently believes in "extraction for prevention."

NORTHERN ILLINOIS DENTAL SOCIETY elected the following officers at its thirteenth annual meeting at Aurora Oct. 24-25, 1900. Pres, W. C. Bunker; V. P., C. R. Currier; Sec., J. J. Reed; Treas., M. R. Harned. Next place of meeting, Joliet.

"LIQUID STONE."—A patent has recently been granted on this article to Dr. N. B. Winter, a dentist at Lexington, Ky. It makes stone look as if it has just been quarried, and when applied with a brush it dries immediately and makes a building look like new.

THE GENTLER SEX.—A woman dentist at Rushville, Ill., on Nov. 13, armed with a horsewhip and a revolver, attempted first to whip and then to kill a merchant and his clerk in that city. She claimed that the two men had circulated derogatory reports about her

MOUNTEBANK IN TROUBLE.—A man at Fresno, Cal., who calls himself a dentist, hired an express wagon recently and began to extract teeth free of charge throughout the city to advertise his method, but the police refused to let him continue without taking out a license.

DANGEROUS TO SWALLOW.—"Oh, doctor! is it very dangerous to swallow hard rubber?' "Very dangerous indeed." "And porcelain? Oh, doctor! is it very poisonous?" "Rather. But see here, madam, have you attempted suicide?" "No, but I have swallowed my false teeth."

DEATH UNDER EXTRACTION.—A woman at Mapleton, Iowa, died Oct. 22, 1900, while having some teeth extracted. The dentist tried to dissuade her from taking chloroform, and when he finally refused to administer it she called in a physician to do so. Score one for the dentist.

ILLINOIS STATE BOARD SUED.—Herbert Phillips of Chicago has brought suit against the members of the Illinois State Board of Dental Examiners for $25,000 damages, alleging that he was falsely imprisoned by the board during September for practicing dentistry without a license.

PAY IN ADVANCE.—Patient: "Isn't it dangerous to administer anesthetics? Must be terrible to have a person die in your chair." Dentist: "Yes. It was for that reason that we adopted the rule that where an anesthetic is administered the patient must pay in advance."—*Boston Transcript.*

GEORGIA DENTIST WHO CAN NOT VOTE.—According to the Macon *News*, Dr. D. S. Wright, a well-known dentist and highly respected citizen of that town, can not vote. The doctor was a soldier in the confederate army, and after the war was over he refused to take the oath of allegiance, so of course is not legally a citizen.

ROCKFORD (ILL.) ODONTOLOGICAL SOCIETY held its annual meeting Nov. 6, 1900, and elected the following officers: Pres., F. C. Gill; V. P., Bryant Kerr; Sec. and Treas., D. S. Brogunier. Member Board of Censors, M. A. Banks. The event was also in the nature of a farewell to Dr. C. A. Kitchen, who left for Los Angeles, Cal.

AMERICAN ACADEMY OF DENTAL SCIENCE held its annual banquet and election Nov. 14, 1900, and elected the following officers: Pres., V. C. Pond; V. P., F. Bradley; Rec. Sec., Frank Perrin; Cor. Sec., G. B. Payne; Treas., W. Y. Allen; Librarian, H. G. Hichborn; Editor, C. H. Taft; Ex. Com., F. G. Eddy, Thomas Fillebrown, S. G. Stevens.

TO REMOVE GUM TISSUE FROM A TOOTH CAVITY.—A difficulty which is frequently met with is the intrusion of the gum into the cervical edge of cavity, so as to render difficult and very painful adjustment of the rubber. The excess of gum may be burnt away with a minimum of pain by means of sodium of ethylate.—Robertson in *Dental Record.*

OSTEOPATHY.—A. T. Still, M.D., founder of the osteopathic cult, in the *Journal of Osteopathy* for July, delivers himself of the following lucid sentence: "All bones and softer parts must obtain all matter entering their form and kind." This reminds one of the cheerful and enlightening conundrum: "Why does a mouse spin?"—*Cleveland Jour. of Med.*

"MANUAL OF PERSONAL HYGIENE."—Edited by Walter L. Pyle, A.M., M.D. There are seven writers concerned in this work, each contributing a chapter on his specialty. The book is apparently intended for the guidance of the laity, but should prove both interesting and instructive to the profession. Philadelphia: W. B. Saunders & Co., 1900. Price $1.50, net.

PATENT ON BABY'S TOOTH.—One day the wife of Edison the inventor, came to him and announced with great glee that the baby had a new tooth. "Very well, my dear," replied the husband, never stopping a minute from his work, "I have not time to bother with your affairs now. Just run along and get a patent on it and have it charged to my account."—*New York Sun.*

FORCED DILATION OF THORAX TO ARREST EPISTAXIS.—The subject sits erect on a chair, places both arms on his head and breathes quietly and as deeply as possible, with open mouth. The veins of the head and neck are emptied of blood by this procedure and the hemorrhage stops. Fedorowitsch has cured fourteen severe cases by this simple means, all children but one.—*Jour. A. M. A.*

SCHOOL CHILDREN'S TEETH.—The Maryland State Dental Association has offered to examine the teeth of the pupils in the public schools of that state, and to note on diagram any cavities or imperfections which may be present in the individual mouths. This paper would be sent to the parents, and would in all probability result in attention being given where needed. The school board has not as yet acted on the question.

VALUE OF AN AMERICAN DEGREE.—The University of Delaware, which we exposed some months ago in our columns, and which exists only in the persons of a dentist, a saloon-keeper and the wife of a carpenter, is now offering degrees of all sort for whatever price can be obtained. In consequence of this and other abuses the medical board in Australia refuses to register any American diplomas without examination.

TO MARK EXACTLY ON A DENTURE THE SPOT CORRESPONDING TO A WOUND OF THE MUCOUS MEMBRANE.—Cut a disk of suitable size from paper gummed on one side, and place it carefully over the ulcerated spot, gummed side up. Moisten the denture and place in position with light pressure. Remove carefully and the disk will be found adherent upon the point wounding the membrane, which can then be relieved.—*Revue de Stom.*

QUININ SULPHATE FOR SENSITIVE DENTIN.—A very nervous lady had tried five different dentists in Paris to have her teeth filled, but the dentin was so highly sensitive that she could not submit to the operation. Schwarz gave her three powders of quinin, eight grains each, to be taken at intervals of forty-eight hours. The sensitiveness of the dentin was entirely lost, and he filled three cavities at the first sitting.—*L'Odontologie.*

OSTEOPLASTY OF THE INFERIOR MAXILLA.—Dr. W. Sykoff says that osteo plastic resection of the lower jaw, when it can be performed, is to be preferred to prosthetic apparatus. The three essentials to a successful operation are retention of the perineum and of a bony bridge for support of the subjacent tissues; retention of the marrow; and an aseptic condition of the transplanted piece of bone. He reports a successful case.—*N. Y. Med. Jour.*

HEMORRHAGE AFTER TOOTH EXTRACTION; PICRIC ACID.—Place a drop of creosote, or carbolic acid, and a drop of nitric acid side by side on the top of an inverted glass. Now take a pledget of cotton and dip it first in one and then in the other, and after waiting a moment pack securely in the alveolus. The union of the creosote, nitric acid and cotton forms a violently explosive compound, and must be handled with care.—Dr. G. T. Baker, *International.*

DEALERS VS. MECHANICAL DENTISTS.—We have on one or two occasions in the past criticized Trust houses for advertising to do mechanical dentistry, and we are now pained to note that not only is the number of dealers who thus war against the mechanical dentists on the increase, but even non-combination houses are entering the field. Supply houses which endeavor to usurp the work of the mechanical dentist and to crowd him out of the field should be rebuked in no uncertain way, and we should think the dental profession would not hesitate to administer it.

PLEASANT EDUCATIONAL PASTIME.—The medical and dental students at the Omaha Medical College, Omaha, Neb., had a fight over the possession of a lecture-room Nov. 15, and in the scrimmage several students were more or less severely injured, and one perhaps fatally. We are heartily in favor of dental students entering upon the work of their chosen profession with the utmost zeal, but this looks as if they were too earnest in the matter, and we would urge the authorities to curb their ambition.

INTELLIGENT JURY.—Dr. H. Baldwin, a dentist of Mt. Carroll, Ill., brought suit Oct. 17 at Hammond, Ind., against a young woman who owed him $41 for services performed in Illinois. At the time the work was done she was eighteen years old, the legal age for a woman in Illinois. But the Indiana law fixes maturity at twenty-one years, and as the defendant had not reached that age a verdict was granted in her favor. Why is it that professional men never receive fair treatment in a justice court?

"AMERICAN TEXT-BOOK OF PROSTHETIC DENTISTRY" by eminent American authorities. Edited by Charles J. Essig, M.D., D.D.S. This work well answers the need for a comprehensive and authoritative exposition of the principles and practice of the art in its most modern development. The volume marks a distinct advance in the literature of dentistry. Second edition, revised and enlarged. In one volume of 817 pages, with 1089 engravings. Lea Brothers & Co., Philadelphia and New York, 1900. Cloth, $6; Leather, $7.

MOTHERS AND ALCOHOL.—Maurice Nicloux (*L'Obstetrique*) reports an extensive series of experiments with the following conclusions: Ingested alcohol passes from the mother to the fetus and into her milk, the proportion in the blood of the fetus and in the milk being about the same as in the blood of the mother. Therefore the nervous conditions, drunkenness, anesthesia, etc., of the drinking mother must indicate a marked toxicity in the infant, and the whole baneful influence of alcohol upon the tissues is exerted during their process of formation, with especial injury to the nervous supply.

CHINESE VOCABULARY.—Many of the characters in the Chinese language are suggestive of the relationship between husband and wife, and leave no doubt as to the subordinate position which the woman occupies in Chinese domestic life. The part which the man plays in securing his bride is vigorously illustrated in the words to seize, the character for woman crouching under the Chinese symbol for claws, while the character for wife, indicated by a woman placed beside a broom, is evidence of the Chinaman's opinion with regard to the proper position of his helpmate in the household.—*October Ladies' Home Journal.*

TREATMENT OF ANTRAL EMPYEMA.—Max Halle (*Berliner klin. Woch.*) advocates the procedure followed in Krause's clinic in Berlin. The antrum is opened by a trocar in the interior nasal meatus and its contents are evacuated by syringing through the opening thus made, out through the natural opening in the middle meatus. By means of the syringe an air douche is driven through the antrum and it is again syringed. The air douching is again resumed until the interior of the cavity has been made fairly dry. Iodoform is then freely insufflated into it. No packing whatever is used.

Halle claims that this plan of treatment (the dry method) is not difficult, can be done without narcosis, avoids all communication with the mouth, relieves patient from the disagreeable taste of iodoform packing, as is so often necessary in operations through the cuspid fossa, and produces healing in less time than by other methods.—*Med Rec*

DEATH FROM HEART FAILURE.—Dr. J. E. Dunn of Chicago reports a narrow escape which he had recently. A patient called upon him for extraction of some teeth prior to having a bridge placed, but when the day came for extraction the patient did not feel well enough, so the operation was postponed, and the same occurrence took place on six or seven following occasions. Finally the patient braced himself with whisky and had one tooth drawn, insisting on leaving the others until a future date. Some days later he presented for the ordeal, but died in the building before an anesthetic was administered or the work was begun. If he had died in the chair, Dr. Dunn would of course have been put in an embarrassing position. Dr. F. T. VanWoert had a similar experience some years ago. A man called for extraction of a tooth, but the doctor did not wish to administer the anesthetic during the absence of his assistant, so the man left the office, but fell dead on the sidewalk.—*Items.*

OYSTERS.—Oysters have for centuries been much esteemed by medical men as being very nutritious and easy of digestion, but both these properties are much diminished when not taken in their raw state. It may not be generally known that the fluid which surrounds the oyster bears a closer analogy to the gastric secretion than anything else in nature. In addition to the solvent properties of this fluid it is not without its nutrition. We have of late devoted considerable attention both to the substance and secretion therefrom, and find that in a given weight of the latter and the same of the oyster, the fluid yields only forty per cent less of animal gluten or jelly than the fish. Consequently all persons who are accustomed to eat oysters should be ever mindful that as little as possible of the juice should be lost. When oysters are eaten stewed or scalloped, the two properties, as before stated, are much diminished; consequently they ought never to be taken by invalids except in their raw state.—*Sanitary Record.*

TOXIC EFFECTS OF BORIC ACID are described by Dr. J. J. Evans in the *British Medical Journal.* In treating a case of cystitis increasing doses of 10 to 20 grains of boric acid three times a day were prescribed. After about three weeks of this treatment an erythematous rash spreads over the patient's neck, face and head, followed by some subcutaneous edema, and a fine scaly dermatitis. The salivary glands became enlarged, and eventually the hair on the face and head fell out, so that in a fortnight the man was perfectly bald. The drug was discontinued, but six weeks elapsed before there was any reappearance of hair on the face or head. In numerous other cases of cystitis and urethritis extending over a period of five years, Dr. Evans has observed similar effects following the administration of boric acid—that is, an erythema followed by a fine scaly exfoliation. Immediate discontinuance of the drug prevented development of the more severe symptoms, but

in one case, in which it was inadvertently continued, the hair fell out to a slight extent, and there was marked exfoliation of the skin, especially of the hands, with onychia and splitting of the nails. Dr. Evans concludes that the symptoms were entirely due to the action of boric acid on the skin and appendages.

HEADACHE FROM EYE-STRAIN.—Casey A. Wood says that the site of the ocular headache in the order of frequency is (1) the supraorbital; (2) the deep orbital; (3) the fronto-occipital; (4) the temporal. The character of the pain is more likely to be dull and heavy than very acute. The exciting causes are tasks which require the use of the accommodation and convergence, reading, writing, drawing, painting, typewriting, sewing, music, card-playing, billiards, shopping, riding in trains and street-cars, etc. Long-sighted people suffer more from headache than the short-sighted. Insomnia, dyspepsia, pelvic disease predispose to ocular headache. The author is opposed to internal drug treatment, but advises very hot or very cold fomentations. In conjunction the following mixture may be rubbed over the forehead and temples, or a towel, wet with one part in ten with ice-water, may be laid over the closed eyes and forehead while the patient is lying down: Spirits of lavender, alcohol, aa fl ℥iii.; spirits of camphor, fl ℥i.—*Med. News.*

CAUSE OF CANCER.—Roswell Park (*Buffalo Med. Jour.*) gives it as his personal opinion that cancer is of parasitic origin. Not one parasite, but probably many, are responsible for the various malignant growths. In their labors at the State Laboratory in Buffalo they have received increasing confirmation of this belief. They have found in all carcinomata certain bodies resembling fat, but which are not soluble in ether or alcohol. Park says that in their recent work, in which cancer-tumors are introduced into living animals, they were able to find these bodies in large numbers in the enlarged lymph-nodes of the animals. They have been able in one case to produce a true adenocarcinoma in an animal by inoculation with fluid from the peritoneal cavity of a man suffering from colloid cancer of the omentum. In this fluid was found an organism which apparently belongs to the yeast group, but which they were unable to cultivate. The laboratory is in possession of pathogenic yeasts which various investigators have isolated from cancer, and experiments are being performed with them. These organisms are exceedingly polymorphic and difficult to deal with.

HIBERNATION AMONG RUSSIANS.—A practice closely akin to hibernation is said to be general among Russian peasants in the Pskov government, where food is scanty to a degree almost equivalent to chronic famine. Not having provisions enough to carry them through the whole year, they adopt the economical expedient of spending one-half of it in sleep. This custom has existed among them from time immemorial. At the first fall of snow the whole family gathers round the stove, lies down, ceases to wrestle with the problems of human existence and quietly goes to sleep. Once a day every one wakes up to eat a piece of hard bread, of which an amount sufficient to last six months has providently been baked in the previous autumn. When the bread has been washed down with a draught of water every one goes to

sleep again. The members of the family take it in turn to watch and keep the fire alight. After six months of this reposeful existence the family wakes up, shakes itself, goes out to see if the grass is growing, and by and by sets to work at summer tasks. The country remains comparatively lively till the following winter, when again all signs of life disappear and all is silent, except we presume for the snores of the sleepers. This winter sleep is called "lotska."—*Med. Age.*

KING OF BELGIUM'S MISHAP.—The Paris papers can not help laughing at a mishap that befell the king of Belgium while he was sightseeing in the city of light a few weeks ago. In the middle of the night the electric bell communicating between his majesty's bedroom and that of his valet was heard to ring violently and uninterruptedly. The valet, in night attire and scared out of his wits, ran to his master, whom he found sitting on his bed, green with terror: "Something dreadful has happened," said the king. "I have just awakened, and—look!" His majesty opened his mouth, and there was a wide space in it. "I have swallowed those two d—d teeth," he groaned, and am in pain. What is to be done?" In a second the valet awoke the king's secretary, who rushed off for the nearest doctor. He returned, bringing a powerful emetic, which royalty swallowed docilely. Then his august head fell back on the pillow, which the faithful servant began to smooth in a motherly fashion. Suddenly a scream of joy rent the air. There, among the luxurious lace of the pillows, glittered the teeth. But the honest emetic did its duty all the same, and the next morning his majesty did not keep an engagement with the exposition functionaries, as he had planned to do. Shade of Dr. Evans! This could not have happened in your time.

NO EXCUSE FOR NOT HAVING LICENSE.—The defense to the Mississippi case of Bohn vs. Lowry, an action brought to recover for professional services, was that the plaintiff had not been examined and had not obtained the required license to practice in that state. At the trial, he testified that by profession he was a physician; that he had practiced medicine seven years; that he was a graduate of Tulane University, and of the Charity Hospital of New Orleans, La.; that he had applied for and received a temporary license from the Mississippi State Board of Health, and that he did not go before the board of examiners at the meeting held just prior to the expiration of such license because he was sick. But, even under such circumstances, the Supreme Court of Mississippi holds that he could not maintain an action for professional services without the license required by law. That he was a graduate of Tulane University, and a skilled physician, it says, was not to the purpose. That he was disabled by sickness from obtaining a permanent license, which, doubtless, he would have done if he had been before the board, was his misfortune. Looking back, it seems that it would have been a reasonable and wise provision of law that it should have authorized the board of health to extend a temporary license for inability to attend a meeting of the board on account of sickness or other adequate cause. But, after saying so much, the court adds, it is for the legislature to insert such provision, and not for the court to ingraft it.—*Jour. A. M. A.*

CONTENTS.

ORIGINAL CONTRIBUTIONS—

Autointoxication and Mercurial Retention, By E. L. CLIFFORD..... 781
Celluloid Table Cover, By GRAFTON MUNROE..... 783
Gold as a Filling Material, By N. S. HOFF..... 784
Gaining Entrance to Pulp-Chambers and Root-Canals, By L. P. HALL..... 791

DIGESTS—Inlays, Their Advantages and Limitations, 799. Amputation and Longevity, 804. Gasolin As a Detergent, 805. Consciousness Disappears Thus, 807. Texture of Present or Future Dentins Can Be Improved, 808. Chemical Erosion of Teeth, 809. Porcelain Root Substituted For Diseased Root of a Molar, 812. Medicinal or Mechanical, 815. Expanding The Lower Arch, 818. Cast Aluminum Plates, 819. Dental Suppuration Terminating Fatally, 827. Minor Anesthetics in Minor Surgery, 829. Alveolar Abscess, 831. Is Inebriety Ever a Disease or Always a Vice? 833. Cone for Root-Canal Filling, 835.

EDITORIAL—Collusion and Fraud Proven Against the Crown Co. by The Protective Association..... 837
Newspaper Ethics..... 838
NOTICES..... 841
NEWS SUMMARY..... 844

INDEX TO ADVERTISEMENTS.

	PAGE
Allen, A. B.—Clamp	32
Ames, W. V-B.—Cements	41
American Hard Rubber Co.	48
Angle, Dr. E. H.—School	22h
Antidolar Mfg. Co.—Anesthetic	44
Baltimore College of Dental Surgery	59
Berry Mfg. Co.—Crowning Outfit	22f
Birmingham Dental College	58
Canton Surgical and Dental Chair Co.	44
Chicago College Dental Surgery	62–63
Clark, A. C. & Co.—Dental Furnishings	24
Cleveland D. M. Co.—Cavity Cutters	51
Dee, Thos. J. & Co.—Refiners	38–39
Dentacura Co.—Tooth Paste	2
Detroit Dental Mfg. Co.—Specialties	42–43
Dental Protective Supply Co.—	
Adjustable Slip-Joint	16
Angle Attachment	15
Ductile Alloy	10
Fellowship Alloy—Back cover,	6, 17
Fellowship Burs	11
Fellowship Teeth	19, 20, 21, 22, 22a, 22b
Fellowship Broaches	9
Fellowship Dental Engine	6
Fellowship Crowns	7
Mouth Mirrors	12–13
Repair Work	8
Rubber-Dam	14
Second-Hand Engines	22h
Denver Univ.—Dental Dept.	56
Douthitt, J. F.—Tapestries	26
Dunn, J. A.—Syringe	23
Fletcher, M. H.—Vegetol	23
Gesswein, F. W. Co.—Ruby Crystal	49
Gilbert, S. E.—Specialties	35
Goldsmith Bros.—Refiners	64
Goodrich, B. F. Co.—Rubber	31
Howard, C. T.—Strips	30
Harvard University—Dental Dept.	60
Hammond, John F.—Furnace	22d
Hall, Wm. R. & Son—Specialties	53
Hisey Mfg. Co.—Anesthetic	47
Hull, R. H.—Disk	23
Ideal Chemical Co.—Anesthetic	27
Illinois Medical College	55
Illinois School of Dentistry	51
Kress & Owen—Glyco-Thymoline, Cover page	

	PAGE
Lambert Pharmacal Co.—Listerine	1
Lowry, Dr. H. S.—Crowning Outfit	45
McDoniel, L.—Dentist's Office Coats	31
McKesson & Robbins—Cover page,	3
Magrath, Jas. T. & Co.—Supplies	35
Manhattan Dental Co.—Platinoid	30
Mason, L. J. & Co.—Electric Outfit	25
Meister, C. & Co.—Matrices	22d
Mexico Planters Association	52
Minn. Univ.—Coll. of Dentistry	55
Montezuma Plantation	28
Morgan-Maxfield—Disk Mandrel	35
Morgan, Hastings & Co.—Gold Foil, etc.	50
Morrison, J. H.—Crown Outfit	22c
Munson, C. W.—Teeth	22g
Munn & Co.—Patents	22h
Mutual Dental Supply Co.	55
New York College of Dentistry	57
New York Dental School	54
Niles, E. S.—Antiseptic Floss	22c
Northwestern Univ.—Dental Dept.	60
Oakland Chem. Co.—Hydrogen Dioxid	3
Odontunder—Anesthetic	32
Ohio College of Dental Surgery	58
Palmer Dental Laboratory Co.	22e
Palisade Mfg. Co.—Borolyptol	4
Penna. College of Dental Surgery	61
Philadelphia Dental College	60
Philadelphia Optical College	22h
Phillips, Chas. H. Co.—Cover page	
Robinson, W. H.—Bristle Discs	22c
Russell Electric Mallet Co.	46
Sanitol Co.—Sanitol	5
Scharmann, G.—Burs, Cement	33
Schering & Glatz—Eucain	49
Sims' Hyd. Eng. Co.—Motor	29
Smith, D. H.—Obtunding Paste	30
Snyder, Dr. F. L.—Disk	22h
Sterion Alloy	37
Strout, J. M.—Matrix Carrier	47
Stutenroth, C. W.—Anesthetic	22g
Terraplastica Mfg. Co.—Specialties	40
Twist, Dr. J. F.—Crowning Outfit	34
Willson, H. B.—Patents	22h
Webster Blow-Pipe Co.—Blow-Pipe	36
Webster, Frank E.—Anesthetic	53
Western Reserve Univ.—Coll. of Dentistry	60